NORTH STANLY, NC
BICYCLE & PEDESTRIAN PLAN
MISENHEIMER, RICHFIELD, AND NEW LONDON

Prepared for the Village of Misenheimer, Town of Richfield,
Town of New London & NCDOT
Prepared by Alta Planning + Design
October 2018

ACKNOWLEDGEMENTS

Thanks to the more than 200 local residents, community leaders, and government staff that participated in the development of this plan through meetings, events, comment forms, and plan review. Special thanks to those who participated as steering committee members, listed below.

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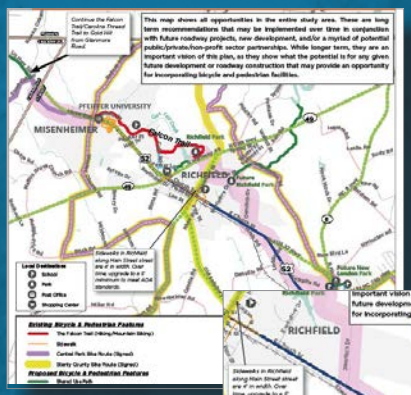
EXECUTIVE SUMMARY

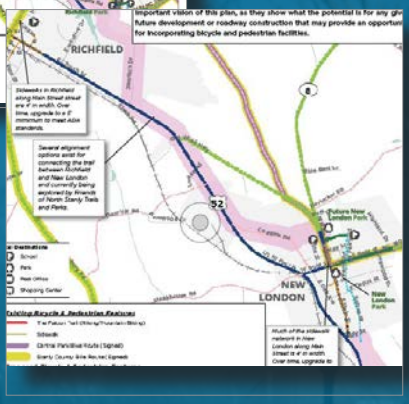
Through this Plan, the Village of Misenheimer, Town of Richfield, and Town of New London aim to:

- Improve pedestrian and bicyclist **safety**;
- Grow and diversify the **economy**;
- Improve **accessibility and connectivity** to community destinations;
- Create new opportunities for **active and healthy living**
- Enhance the **environment and overall quality of life**.

The ***Bicycle & Pedestrian Plan*** Vision Statement:

"North Stanly County will offer residents and visitors many options for bicycling and walking, through well-designed and beautifully maintained greenway trails, and bicycle and pedestrian friendly streets. A connected network of safe sidewalks, bikeways, and greenways strengthens economic vitality, enriches the sense of community, enhances recreation opportunities, and improves overall quality of life."



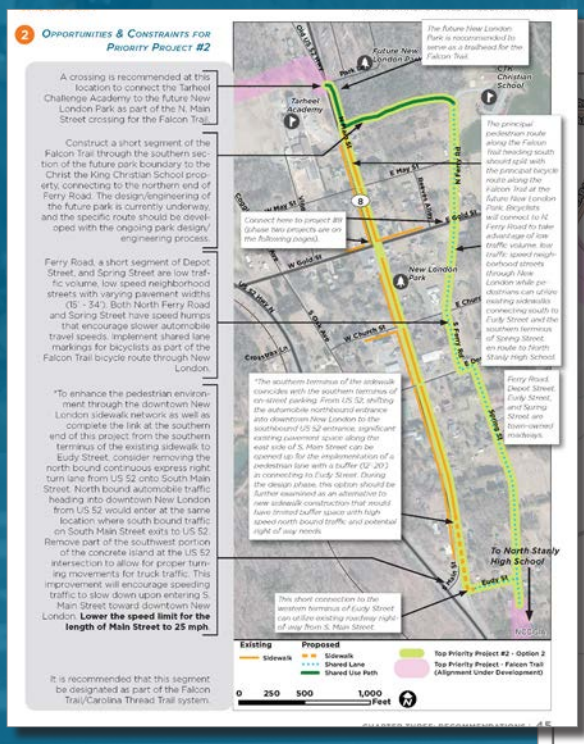


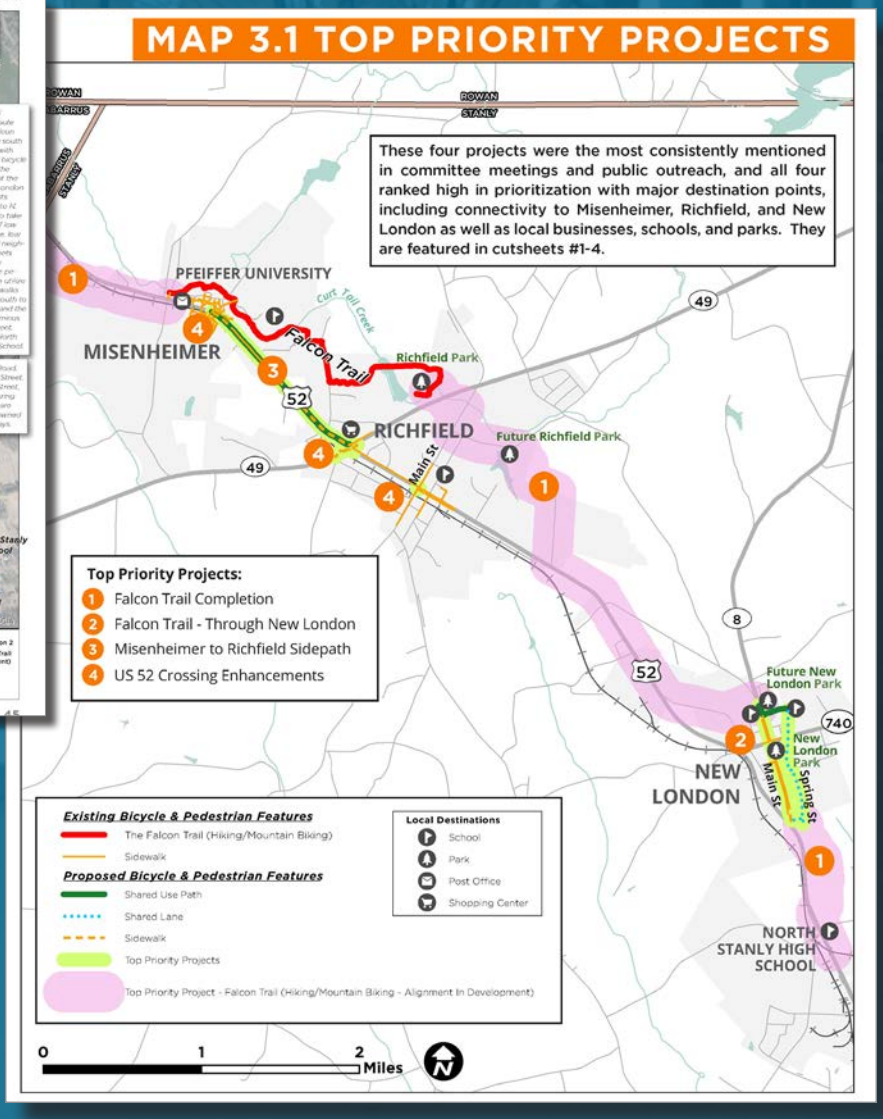
Comprehensive Bicycle & Pedestrian Network Maps

The recommended bicycle & pedestrian networks are comprehensive, including context dependent facility types that connect every corner of North Stanly. ***See network maps beginning on page 61.***

Priority Projects

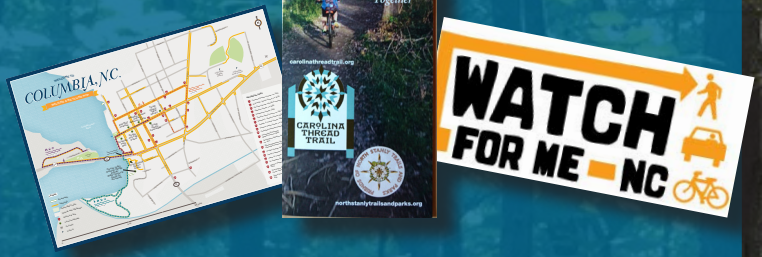
Implementation of the overall network will happen strategically over time. The priorities below serve as projects that should be implemented in the short term, creating momentum for continued network connectivity. ***See pages 40-49 for more on priority projects.***





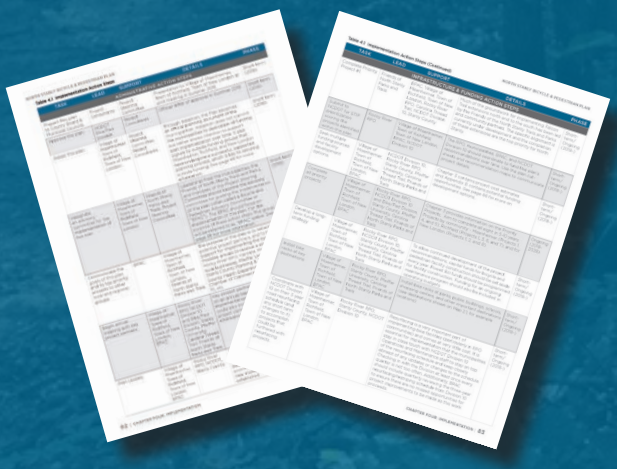
» ***Program and policy recommendations*** are essential and complementary to improvements in infrastructure. The Walk Friendly Community (WFC) and Bicycle Friendly Community (BFC) programs provide tangible goals.

See page 3-31 for more on programs.



» ***Action Steps*** synthesize infrastructure, programming, and policy efforts needed to transform North Stanly into a leader in walking and biking.

See pages 84-86 for action steps table.



CHAPTER ONE:
INTRODUCTION & OVERVIEW

Project Background | Planning Process | Benefits of Planning for a Walkable and Bikeable Community

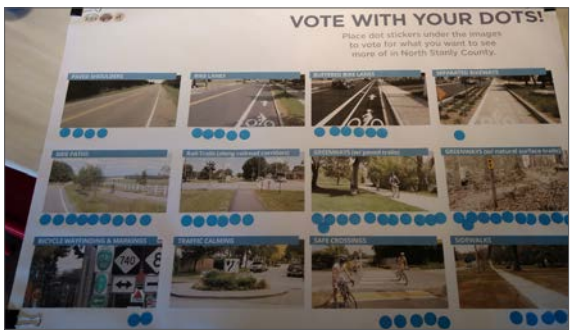
PROJECT BACKGROUND

The North Stanly County Bicycle & Pedestrian Plan was made possible by joint funding from the Rocky River RPO and the North Carolina Department of Transportation (NCDOT). In 2017, the Village of Misenheimer, Town of Richfield, and Town of New London were awarded a matching grant from the North Carolina Department of Transportation (NCDOT) Bicycle and Pedestrian Planning Grant Initiative. The purpose of the grant is to encourage municipalities to develop comprehensive bicycle and pedestrian plans. To date, the initiative has funded planning efforts in nearly 200 municipalities across the state. The program is administered through NCDOT's Division of Bicycle and Pedestrian Transportation.

Through the development of this Plan, the Village of Misenheimer, Town of Richfield, and Town of New London aim to build upon past plans and initiatives (such as the 2010 *Stanly County Carolina Thread Trail Master Plan* and the 2012 *Stanly County Comprehensive Transportation Plan*), prioritize future transportation decisions, and identify funding to improve these facilities. By doing this, **the communities aim to improve connectivity, safety to schools and community destinations, active living opportunities, and to further accommodate future growth and an aging population** by focusing on bicycle and pedestrian improvements.

PLANNING PROCESS

The planning process began with a Kickoff Meeting in November 2017, which was the first of four project Steering Committee meetings. The Steering Committee was made up of a combination of local residents, municipal staff and representatives, educators, NCDOT engineers and regional transportation planners. This Steering Committee guided the plan's development throughout the planning process. Key steps included communicating their overall vision for the plan, identifying opportunities and constraints for walking and bicycling, and providing feedback on plan recommendations.



Above: Dot-voting for facility preference during the first public open house event in January 2018.

The planning process included several other important methods of public outreach and involvement. The public comment form and public workshops were used to gather input for the plan and ask for feedback on the draft plan. The plan and planning process were also promoted through municipal websites.

Figure 1.1 Key Steps in the Planning Process

BENEFITS OF PLANNING FOR A WALKABLE AND BIKEABLE COMMUNITY

North Stanly's current walking and bicycling network is fragmented, as direct pedestrian and bicyclist connections to key destinations are disconnected or do not yet exist. Bicycle and pedestrian planning will be critical to the enhancement of the overall quality of life for these communities.

Through this plan, the Village of Misenheimer, Town of Richfield, and Town of New London aim to:

- Improve pedestrian and bicyclist safety;
- Grow and diversify the economy;
- Improve accessibility and connectivity to community destinations;
- Create new opportunities for active and healthy living
- Enhance the environment and overall quality of life.

VISION STATEMENT

North Stanly County will offer residents and visitors many options for bicycling and walking, through well-designed and beautifully maintained greenway trails, and bicycle and pedestrian friendly streets. A connected network of safe sidewalks, bikeways, and greenways strengthens economic vitality, enriches the sense of community, enhances recreation opportunities, and improves overall quality of life.

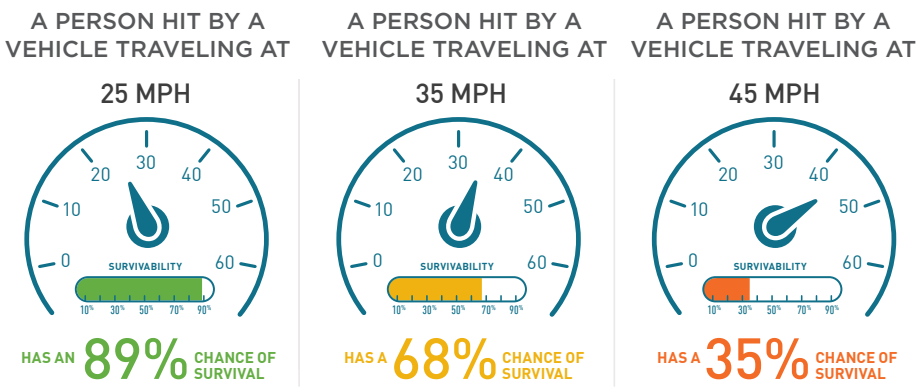
This Vision Statement was developed with input from the Steering Committee, outlining the overall vision for the outcomes of this plan.

SAFETY FOR PEDESTRIANS & BICYCLISTS

Trends and Challenges

According to a survey of 16,000 North Carolina residents for the 2011 North Carolina Bicycle and Pedestrian Safety Summit, the most commonly reported safety issue for walking and bicycling was inadequate infrastructure (75%).[1] A lack of bicycle and pedestrian facilities, such as sidewalks, bike lanes, trails, and safe crossings, lead to unsafe conditions for bicyclists and pedestrians:

- Each year, on average (2011-2015), 2,900 pedestrians and 950 bicyclists are involved in collisions with motor vehicles on North Carolina roads.[2]
- North Carolina has one of the highest rates of bike/ped fatalities per 10k commuters (44th).[3]
- Each year, on average (2011-2015), 17% of all traffic fatalities in North Carolina are bicyclists and pedestrians.[2,4]
- **From 2007-2015, there were five pedestrian collisions and one bicycle collision in North Stanly (See Map 2.2 Bicycle and Pedestrian Crashes, on page 21).**



Source: Tefft, B. C. Impact of speed and a pedestrian's risk of severe injury or death. Accident Analysis & Prevenetion 50 (2013) 871-878.

Improving Safety

Separate studies conducted by the Federal Highway Administration and the University of North Carolina Highway Safety Research Center demonstrate that installing pedestrian and bicycle facilities directly improves safety by reducing the risk and severity of pedestrian-automobile and bicycle-automobile crashes. For example, installing a sidewalk along a roadway reduces the risk of a pedestrian "walking along roadway" crash by 88 percent. Furthermore, according to the aforementioned survey, 70% of respondents said they would walk or bicycle more if safety issues were addressed, citing a lack of bicycle and pedestrian facilities as the top issues[1] (see Pedestrian Crash Countermeasures below).

The following web addresses link to more comprehensive research on safety.

- http://www.walkbikenc.com/
- http://www.pedbikeinfo.org/data/factsheet_crash.cfm

HEALTH IMPACTS OF ACTIVE TRANSPORTATION

Trends and Challenges

North Carolina's transportation system is one of the most important elements of our public environment. Unfortunately, it includes many streets that are unsafe for walking and bicycling, posing barriers to healthy living and active transportation. Key trends and challenges related to health and transportation in North Carolina include:

- 67% of adults in North Carolina are either overweight or obese.[5]
- Reports have estimated the annual direct medical cost of physical inactivity in North Carolina at $3.67 billion, plus an additional $4.71 billion in lost productivity.[6] However, every dollar invested in pedestrian and bicycle trails can result in a savings of nearly $3 in direct medical expenses.[7]
- **According to the *Stanly County 2015 Community Health Needs Assessment*, the second highest cited health problem was obesity/overweight (drug abuse was first).** Active transportation (i.e., biking and walking) can dramatically improve health by reducing and preventing not only incidences of obesity, but community levels of diabetes, stroke, and heart disease, as noted below.

Better Health through Active Transportation

Using active transportation to and from school, work, parks, restaurants, and other routine destinations is one of the best ways that children and adults can lead measurably healthier lives. Increasing one's level of physical activity through walking and bicycling reduces the risk and impact of cardiovascular disease, diabetes, chronic disease, and some cancers. It also helps to control weight, improves mood, and reduces the risk of premature death.[8]

Figure 1.2 Pedestrian Crash Countermeasures

PEDESTRIAN CRASH COUNTERMEASURES	PEDESTRIAN CRASH REDUCTION FACTOR
Install pedestrian overpass/underpass	90%
Install sidewalk (to avoid walking along roadway)	88%
Provide paved shoulder (of at least 4 feet)	71%
Install raised median at unsignalized intersection	46%
Install pedestrian refuge island	36%
Install pedestrian countdown signal heads	25%

Source: Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes. FHWA-SA-014. (2008). Federal Highway Administration. <goo.gl/Dhjw73>

Figure 1.3 Active Transportation: Pathway to Health

Source: Alta Planning + Design; WalkBikeNC

ECONOMIC IMPACTS OF ACTIVE TRANSPORTATION

Economic Trends in North Carolina

Bicycle and pedestrian facilities generate economic returns by raising property values, supporting local businesses and jobs, attracting visitors, and generally diversifying the local economy. Below are some key economic trends related to walking and bicycling in North Carolina:

» North Carolina is the 6th most visited state in the United States and visitors spend as much as $17 billion a year, many of whom partake in activities related to walking or biking.[9]

» Walking and biking are economically efficient transportation modes. Many North Carolinians cannot afford to own a vehicle and are dependent on walking and biking for transportation (6.3% of occupied housing units in North Carolina do not own a vehicle).[10]

$8,220

Average Cost of Operating a Car Per Year

$308

Average Cost of Operating a Bike Per Year

Source: Mohn, T. "Pedaling to Prosperity: Biking Saves U.S. Riders Billions a Year." (2012). Forbes. <goo.gl/YX2r1R>

AN ECONOMIC IMPACT STUDY FOR THE CAROLINA THREAD TRAIL ESTIMATED SEVERAL ECONOMIC BENEFITS OF A FULLY BUILT-OUT 15-COUNTY REGIONAL TRAIL. SOME HIGHLIGHTS INCLUDE:

- ***Increased Property Values** — Homes in the affected area of the Carolina Thread Trail are estimated to increase approximately 4% in value.*
- ***Economic Benefits from Investment in Trail Construction** — Including development costs, the construction investment over a 15-year period (the proposed period of construction) is estimated at over $100 million. This investment will generate significant economic benefits, including jobs for the local communities and the region.*
- ***Outdoor Recreation Facilities Attract Tourists** — The trail is expected to not only bring new visitors and tourists to the region and inject new dollars into the local economy, but also promote connectivity between tourist destinations for visitors, as well as local residents.*
- ***Enhanced Ability to Attract and Retain Business** — Information from industry professionals and site selection firms supports the significance of greenspace and trails for business development and attraction. The trail will create a strong draw for young professionals choosing to reside in or relocate to the area.*
- ***Less Costly Cleanup of Polluted Water and Air** — Reduced runoff associated with the greenway landscapes of the trail can mitigate storm water management and treatment concerns. Additionally, the associated tree cover within the greenway can contribute significantly to the air quality by potentially removing tons of particulate matter per year. Encouraging and implementing these natural enhancements can result in less costly cleanup of polluted water and help reduce health costs from respiratory illnesses associated with air pollution.*

MOBILITY AND ACCESSIBILITY BENEFITS OF ACTIVE TRANSPORTATION

Opportunity to Increase Walking and Bicycling Rates

According to the 2011 Bicycle and Pedestrian Safety Survey, at least 70 percent of North Carolinians would walk or bike more for daily trips if walking and bicycling conditions were improved.[1] With appropriate accommodations, walking and bicycling can provide alternatives to driving for commuting to work, running errands, or making other short trips.

Commute rates for walking and bicycling in North Carolina currently fall below the national average, with just 0.2% of North Carolina commuters bicycling to work and 1.8% walking to work, compared to 0.6% bicycling and 2.8% walking nationwide[10]. This places North Carolina 43rd for both walking commute rates and bicycling commute rates in nationwide state rankings.[3]

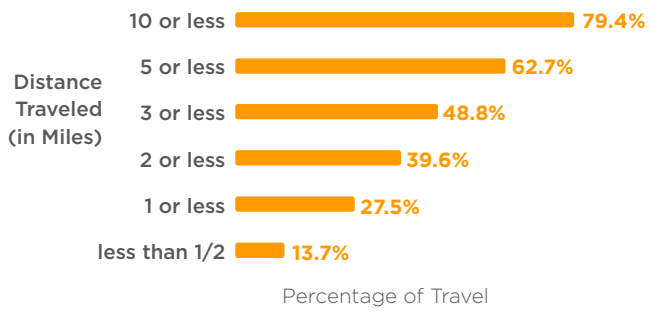
The table on page 14 shows walking and biking rates for North Stanly (census tracts north of Albemarle), as compared to Stanly County and North Carolina overall.

An estimated 40% of all trips (commute and non-commute) taken by Americans each day are less than two miles, equivalent to a bike ride of 10 minutes or less; however, less than 11.9% of all trips are made by walking or bicycling nationwide.[11] To put these numbers into perspective, 34% of all trips are made by walking or bicycling in Denmark and Germany, and 51% of all trips in the Netherlands are by foot or by bike.[12] Germany, Denmark, and the Netherlands are wealthy countries with high rates of automobile ownership, just like the United States. Yet, an emphasis has been placed on providing quality walking and bicycling environments which has alleviated the reliance on motor vehicles for short trips.

Some participants in this planning process have mentioned that there are local people who now commute by bike, and the potential for more people to enjoy a safe walking or biking commute could significantly benefit North Stanly households.

These mobility benefits go beyond commuting as well. Misenheimer, Richfield, and New London are within proximity of each other and contain schools, parks, and small commercial centers within easy walking and biking distance. Residents and visitors can benefit from safe facilities that increase the rate of walking and biking for short trips to these destinations. Furthermore, other aspects of mobility and accessibility also apply to children and those who can no longer drive due to advanced age. Moreover, improved walking infrastructure benefits those who use wheelchairs or scooters, as well as people who have visual impairments.

Figure 1.4 Daily Trip Distances of Americans



Most driving trips are for a distance of five miles or less. Even for those who are only willing to walk or bike distances of a one mile or less, there is potential to replace one-quarter (27.5%) of short driving trips with walking or biking.

Source: Bicycle and Pedestrian Information Center website, www.pedbikeinfo.org

Reduced Vehicle Miles Traveled (VMT) & Congestion

Taking short trips by foot or by bike can help to greatly reduce motor vehicle miles driven and traffic congestion. **Under the Nonmotorized Transportation Pilot Program, walking and bicycling investments contributed to an estimated 23% increase in the number of walking trips and an estimated 48% increase in the number of bicycling trips in four pilot communities between 2007 and 2013.**[13] These individual changes in travel behavior can add up to produce significant societal benefits. Traffic on arterials and other streets can be mitigated as people use sidewalks, bike lanes, paths, and other alternatives to get around. Parking lots can also be made less congested by reducing crowding, circling, and waiting for open spots.

The following web addresses link to more comprehensive research on transportation efficiency.

- http://www.walkbikenc.com/
- http://www.pedbikeinfo.org/data/factsheet_general.cfm

STEWARDSHIP BENEFITS OF ACTIVE TRANSPORTATION

Stewardship addresses the impact that transportation decisions (both at the government/policy level and private/individual level) can have on the land, water and air that North Stanly residents and visitors enjoy.

Trends and Challenges

Below are some key trends and challenges related to stewardship and transportation in North Carolina:

- Even a modest increase in walking and bicycling trips (in place of motor vehicle trips) can have significant positive impacts for the environment. For example, replacing two miles of driving each day with walking or bicycling will, in one year, prevent 730 pounds of carbon dioxide from entering the atmosphere.[14]
- According to the National Association of Realtors and Transportation for America, 89% of Americans believe that transportation investments should support the goal of reducing energy use.[15]
- **North Carolina's 2009-2013 Statewide Comprehensive Outdoor Recreation Plan (SCORP) found "walking for pleasure" to be the most common outdoor recreational activity, enjoyed by 82% of respondents, and bicycling by 31% of respondents.**[16]

Providing safe accommodations for walking and bicycling in North Stanly can help to reduce automobile dependency, which in turn leads to a reduction in vehicle emissions – a benefit for North Stanly residents and visitors and the surrounding environment. As of 2003, 27 percent of U.S. greenhouse gas emissions are attributed to the transportation sector, and personal vehicles account for almost two-thirds (62 percent) of all transportation emissions.[14] Primary emissions that pose potential health and environmental risks are carbon dioxide, carbon monoxide, volatile organic compounds, (VOCs), nitrous oxides (NOx), and benzene. Children and senior citizens are particularly sensitive to the harmful affects of air pollution, as are individuals with heart or other respiratory illnesses. Increased health risks such as asthma and heart problems are associated with vehicle emissions.[17]

The following web addresses link to more comprehensive research on active transportation and stewardship.

- http://www.walkbikenc.com/
- http://www.pedbikeinfo.org/data/factsheet_environmental.cfm

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CHAPTER TWO:
CURRENT CONDITIONS

Local Context | Current Conditions | Related Programs and Plans | Public Input

LOCAL CONTEXT

With histories in rural North Stanly County centered around gold mining, train stops, lumber, agriculture, and education, Misenheimer, Richfield, and New London residents continue to enjoy a rural setting today with close proximity to Albemarle, Morrow Mountain State Park, Uwharrie National Forest, Badin Lake, Badin, and Gold Hill. **With six schools and Pfeiffer University, education is an important part of each community.** New London's quaint downtown center, Richfield's commercial crossroads, and Misenheimer's campus setting form the community centers that anchor the scenic, rural landscapes of North Stanly County today.

Hatched as part of the Carolina Thread Trail, **the Falcon Trail is supported by local volunteers that formed the Friends of North Stanly Trails and Parks** organization. The existing 2.7 miles of trail, linking Misenheimer and Richfield, is of moderate difficulty, designed for walking, hiking, running, bicycling, and family nature opportunities, and is mostly wooded and canopied from Misenhimer to Richfield. Future connectivity potential includes not only to New London, but beyond to Badin Lake, Morrow Mountain State Park and nearby communities such as Albemarle, Badin, and Gold Hill.

Misenheimer, Richfield, and New London are located north of Albemarle in the northern part of Stanly County. US 52 passes through each community, and is a five-lane section as it passes north from Albemarle to just west of downtown New London. In Richfield, it transitions to a three-lane section. Between Richfield and Misenheimer, US 52 becomes a two-lane section before transitioning back to a three-lane section through Pfeiffer University campus. North of Misenheimer to the Cabarrus County line, US 52 transitions back to a two-lane section.

The Town of New London, Town of Richfield, and Village of Misenheimer have total land areas of 2, 2.5, and 1.6 square miles respectively. According to the 2016 5-year American Community Survey (ACS), the approximate populations of New London, Richfield, and Misenheimer are 593, 643, and 732 respectively. Further, 2016 5-year ACS estimates for the North Stanly County area encompassing the three communities north of Albemarle (census tracts 9301.01 and 9301.02) estimate the **area's population at 8,002 people and the median age of the population at 40.9 years.**

The **Pfeiffer University** Misenheimer campus is split by US 52 in the heart of Misenhimer. The total university enrollment is 1,624 students (917 graduate), half of those at the main campus in Misenheimer (half enrolled at branch campuses in Charlotte and Raleigh/Durham.). Established in 1885, Pfeiffer University is a private liberal arts university affiliated with the United Methodist Church.

BICYCLING AND WALKING IN NORTH STANLY COUNTY TODAY

Due to the size of each community, many residents have the potential to walk, run and bike to their destinations since the parks, schools, churches, and local government buildings are all very proximate. However, due to existing land use, connectivity, and infrastructure conditions, walking and biking is not always a safe or comfortable choice. In many communities, walking and biking commute rates are used as an indicator of overall walking and biking. According to the latest census data, **0% of North Stanly residents bike to work, and 5.9% of residents walk to work** (Table 2.1, below). The walk to work rate is much higher than the Stanly County and North Carolina average, and this is largely due to students, faculty, and staff at Pfeiffer University that walk to work.

Although bicycling and walking as a commute to work option is likely to remain low for most North Stanly residents, there are significant opportunities for gains in the number of errands and school travel by foot or bicycle due to the proximity of schools, daily convenience destinations in and near the town centers, and the developing Falcon Trail.

Table 2.1 Demographic Comparison

*CENSUS TRACTS (9301.01 AND 9301.02) NORTH OF ALBEMARLE	*NORTH STANLY COUNTY	STANLY COUNTY	NORTH CAROLINA
Population[1]	8,002	60,610	9,940,828
Median Age[1]	40.9	42.1	38.3
Median Household Income[1]	$44,700	$44,140	$48,256
% Households without a Vehicle[1]	6.5%	6.7%	6.3%
% Walk to Work[1]	5.9%	1.5%	1.8%
% Bike to Work[1]	0.0%	0.1%	0.2%
% School-Age Children (ages 5-19)[1]	20.9%	19%	19.7%

1 US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

CURRENT CONDITIONS

Tables 2.2-2.4 and Maps 2.1-2.3 that follow describe key opportunities and challenges in North Stanly County related to current conditions for walking and bicycling, and provide a basic inventory of existing facilities, destinations, and conditions. It is based on input from the Steering Committee, general public, field review, and available data.

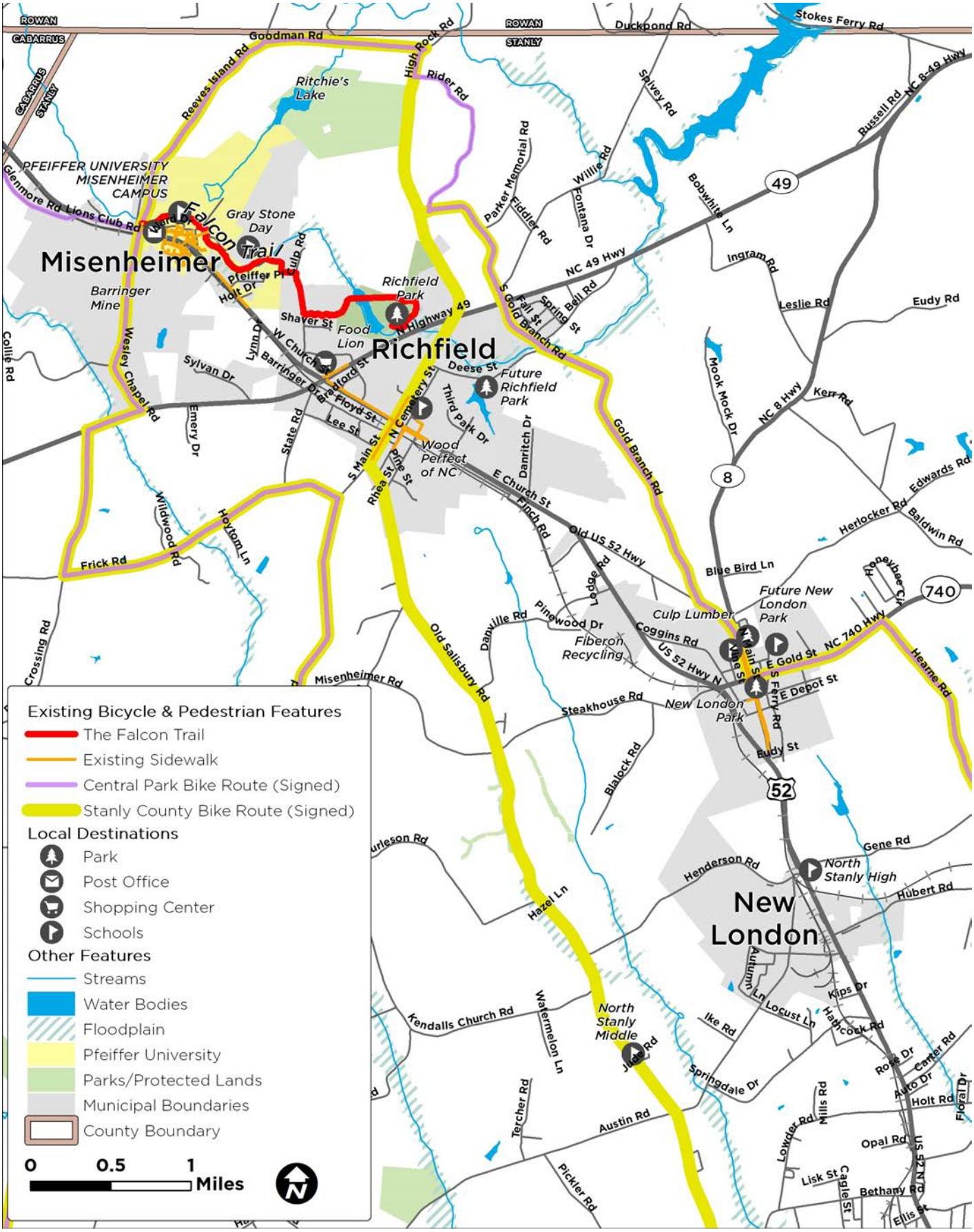
Table 2.2 Current Conditions Assessment

Opportunities and Challenges	Assessment
General Considerations	
Overall Transportation Network	Misenheimer, Richfield, and New London are connected by US 52 which runs roughly northwest/southeast through the communities. North Stanly is bounded by the southern, rural part of Rowan County to the north, rural Cabarrus County to the west, Albemarle to the south, and Badin Lake/Uwharrie National Forest to the east. The residential and commercial portions of the area are clustered around each community's center, surrounded by rural, scenic Piedmont landscapes. NC 49 serves as the main southwest/northeast link through Richfield and NC 8 connects through New London from US 52 to NC 49. Local streets near each town center link to other rural roads that connect across North Stanly County such as Reeves Island Road, Wesley Chapel Road (Misenheimer), High Rock Road, Pauls Crossing Road, Millingport Road, Old Salisbury Road (Richfield), Gold Branch Road, Herlocker Road, Hearne Road, Gene Road Steakhouse Road, Henderson Road, and Herlocker Road (New London). North Stanly County is approximately equidistant to downtown Charlotte (to the southwest) and High Point (to the northeast), less than 50 miles from each.
Existing On- and Off-street Bicycle/ Pedestrian Facilities *(Also refer to* **Map 2.1,** *on page 17)*	**With a cluster of sidewalks at the center of each community, the network is unconnected between the communities.** Existing sidewalks are generally 4'-5' and in good condition. Many sidewalks are constructed without a buffer between the sidewalk and the road, but several examples of sidewalks constructed with buffer space include the Main Street sidewalks in New London, the sidewalk segment on the southeast side of the Food Lion shopping center in Richfield, an unconnected sidewalk segment from Misenheimer toward Richfield, and most sidewalks on Pfeiffer University campus. **The natural surface hiking/mountain biking Falcon Trail serves as a 2.7 mile link between Misenheimer/Pfeiffer University and Richfield.** Besides the Falcon Trail and signed regional bike routes through the area, no dedicated bicycle facilities exist. For major corridor streets, US 52, NC 8, and NC 49, the following conditions are noted: » US 52 - Traveling north/northwest from Albemarle, US 52 bypasses downtown New London and continues through the centers of Richfield and Misenheimer. As a five-lane road with **traffic volumes of 9,000-13,000 AADT and speed limits of 35-55 mph** between New London and Richfield (to NC 49), conditions are not suitable for bicycling. Sidewalk segments along US 52 in Richfield are built with no buffer space between the sidewalk and road, requiring pedestrians to walk alongside high speed traffic. From NC 49 north through Misenheimer, US 52 transitions between a two-lane and three-lane road with 6,700-9,000 AADT and 35-55 mph speed limit. An unconnected sidewalk extending southeast toward Richfield exists on the east side of US 52. **Two pedestrian hybrid beacons (pedestrian activated flashing signals for midblock crossing) are situated at strategic crossings for Pfeiffer University** students in Misenheimer. Otherwise, no other marked crosswalks are found across US 52 through the study area. » NC 8 - NC 8 connects north/south through New London and continues toward the northeast where it intersects with NC 49 in rural northeast Stanly County. Through downtown New London from US 52, the speed limit transitions from 35 mph to 25 mph through the downtown center before transitioning back from 25 mph to 35 mph and eventually 55 mph north of downtown. Parallel parking and sidewalks are found along the Main Street section through downtown New London. Crosswalks with curb ramps exist for all four sides of the Main Street/Gold Street intersection. The May Street, Church Street, and Depot Street intersections of Main Street include curb ramps as well. » NC 49 - Connecting southwest/northeast through Richfield and the northern part of Stanly County, NC 49 is a two-lane road that has 6,000 AADT with a speed limit of 45-55 mph. Besides a short sidewalk segment along the southeast corner of the Food Lion shopping center area, no bicycle and pedestrian facilities exist along NC 49 through the study area.

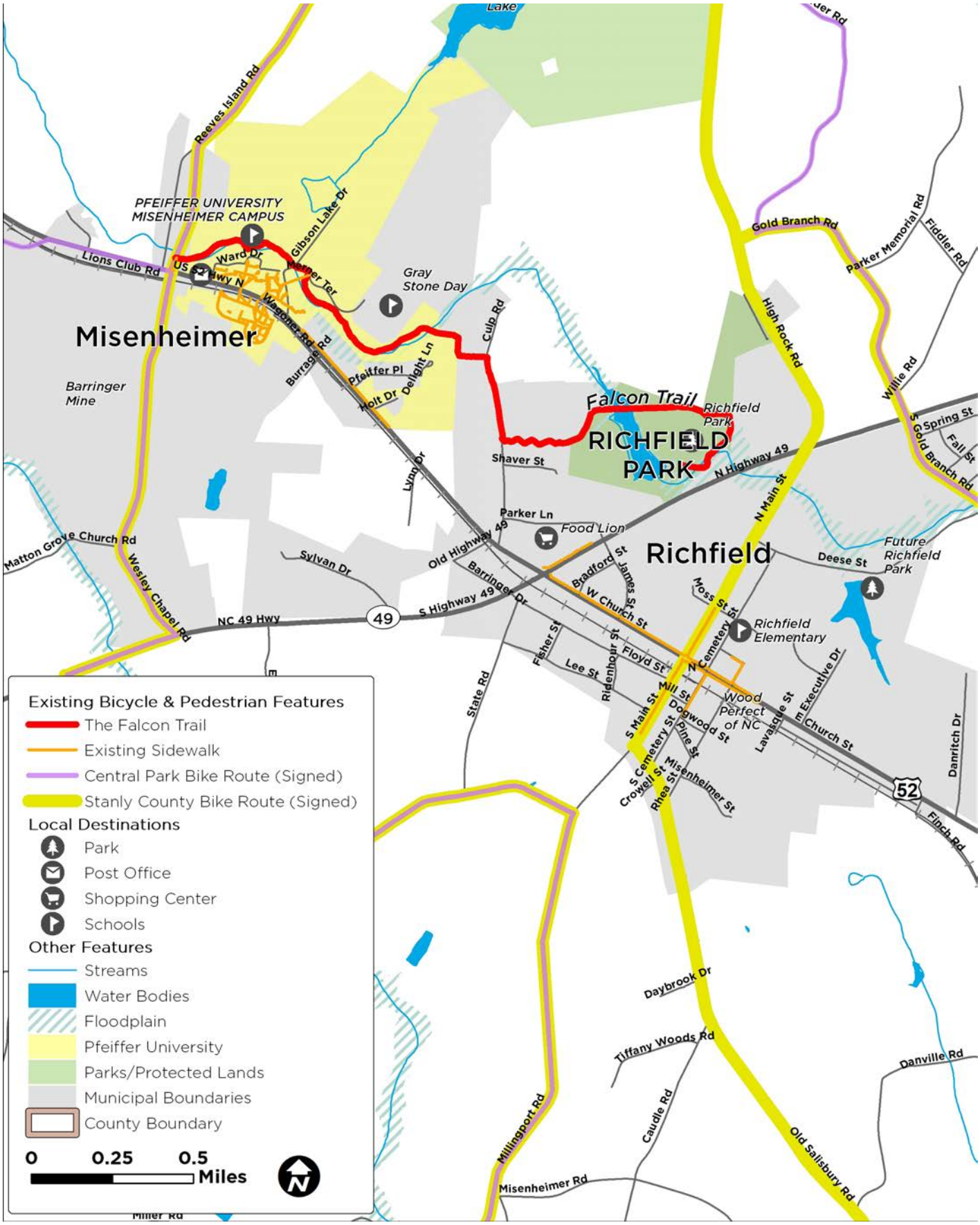
Table 2.2 Current Conditions Assessment *(Continued)*

Current connectivity/ Gaps	**There is limited connectivity for walking and bicycling**, as indicated above with the small amount of existing facilities. For example, the Food Lion shopping center is located at the northern corner of the US 52/NC 49 intersection, and only a small sidewalk exists along the southeastern side of the property. It is not feasible to safely walk or bike across the US 52/NC 49 intersection or connect from Misenheimer/Pfeiffer University to the area's main grocery store. The Falcon Trail and Richfield Park are a short distance away, yet unconnected. Numerous residences and businesses are a short walk/bike ride away from this commercial area but are not accessible by walking and biking.
Crashes: *(Also refer to* **Map 2.2,** *on page 21)*	Map 2.2 shows pedestrian and bicycle crashes in the North Stanly County area that were reported to the NCDOT between 2007 and 2015. There were **five pedestrian crashes and one bicycle crash** within the area. Of these collisions, two pedestrian collisions were fatal. Each crash occurred away from the municipal centers, where no bicycle or pedestrian infrastructure exists, and **all but one were along a roadway with a speed limit of 50+ mph.**
Ownership of Public Road Right-of-Ways *(Also refer to* **Map 2.3,** *on page 22)*	The roadway network in North Stanly County is a combination of locally-owned and state-owned roads. The ownership of the public right-of-way is important for determining the types of facilities that can be constructed in or along a roadway, the agency in charge of maintaining the roadway and implementing bicycle and pedestrian recommendations, and how improvements are scheduled, funded, and constructed. Map 2.3 shows which roadways in North Stanly County are state- versus- locally-owned. Besides several local streets near the center of Richfield and New London, most roads are NCDOT maintained throughout North Stanly County. **The municipalities and county will need to coordinate with NCDOT Division 10 and the Division of Bicycle and Pedestrian Transportation** to implement this plan's recommended improvements along NCDOT owned roadways.
Opportunities and Challenges	**Assessment**
Opportunities	
Density of Key Destinations *(Also refer to* **Map 2.1,** *on page 17)*	Misenheimer, Richfield, and New London have numerous local public and private destinations within walking and biking distance. **Pfeiffer University** is only one mile from Richfield's commercial center at the US 52/NC 49 intersection with **multiple schools, Richfield Park, the Falcon Trail, and multiple businesses and residences** nearby. Just three miles away, **New London's downtown** also includes a compact community center with nearby residences, schools, a park (with another park under development), and multiple businesses. With proper bicycle and pedestrian facilities, many local utilitarian trips by car could be replaced by walking and biking.
Future Parks *(Also refer to* **Map 2.1,** *on page 17)*	**60 acres in Richfield and 22 acres in New London** will be transformed into public parks in the near future. Both of these spaces are close to their respective downtown areas and multiple schools. Along with planned continuations of the Falcon Trail to connect these spaces, thorough walking and bicycling connectivity will be needed to maximize the utility of these assets.
Regional Planning	The Carolina Thread Trail is a developing regional trail system that includes 15 counties in and around Charlotte. The Stanly County Carolina Thread Trail Master Plan was completed in 2010 and 2.7 miles of trail (The Falcon Trail) have been implemented over the last several years, connecting Misenheimer and Richfield. **Future connectivity between Misenheimer, Richfield, and New London can include completing the Falcon Trail link to New London and beyond to North Stanly High School, Badin Lake, Badin, Morrow Mountain State Park, Albemarle to the south and southeast as well as Gold Hill** to the northwest.
Pfeiffer University students Who Walk to Richfield for groceries and other services along US 52	Pfeiffer University students and local residents have been observed walking along US 52 between Misenheimer and Richfield. **Residents consider this corridor important** because the sidewalk network is fragmented along US 52. Pedestrian improvements could focus on these areas where people are already walking. The Falcon Trail parallels US 52 here and improved connectivity to the Food Lion shopping center as well as Richfield Park could significantly enhance bicycle and pedestrian connectivity through and between Misenheimer and Richfield.
Challenges	
Access Management	**There are access management challenges in the vicinity of the US 52/ NC 49 intersection** due to numerous driveways designed for automobile access to the many businesses in this location. This causes potential conflicts for bicyclists and pedestrians traveling along the corridor when cars are entering and exiting the multiple driveways and parking spaces in each direction from the intersection. The corridors could benefit from better managing the frequency and magnitude of conflict points at intersections and driveways by considering closure, consolidation, or relocation of driveways.
Roadway Barriers	US 52 is a five-lane highway as it passes by New London and into Richfield, after which it transitions between a a two-lane and three-lane road north through Misenheimer. Motor vehicles traveling at high speeds (the speed limit on US 52 is between 35 mph and 55 mph). **There are no existing crossing facilities for pedestrians along US 52 besides at Pfeiffer University campus.** Crossing multiple lanes on US 52 creates a high-stress pedestrian and bicyclist environment, effectively cutting off bicyclists and pedestrians from crossing the corridor south of Misenheimer. Similarly, the traffic volumes and speeds of motor vehicle traffic along NC 8 and NC 49 serve as significant barriers to walking and biking traffic. The sidewalks along NC 8 through downtown New London are one exception to NC 8 serving as a barrier.
Inaccessibility of North Stanly High School	North Stanly High School is situated at the southern town limits of New London, about 1.3 miles south of downtown New London. The five-lane section of **US 52 is the only direct connection to New London and is not a safe section for students that want to walk or bike** from New London or anywhere north.

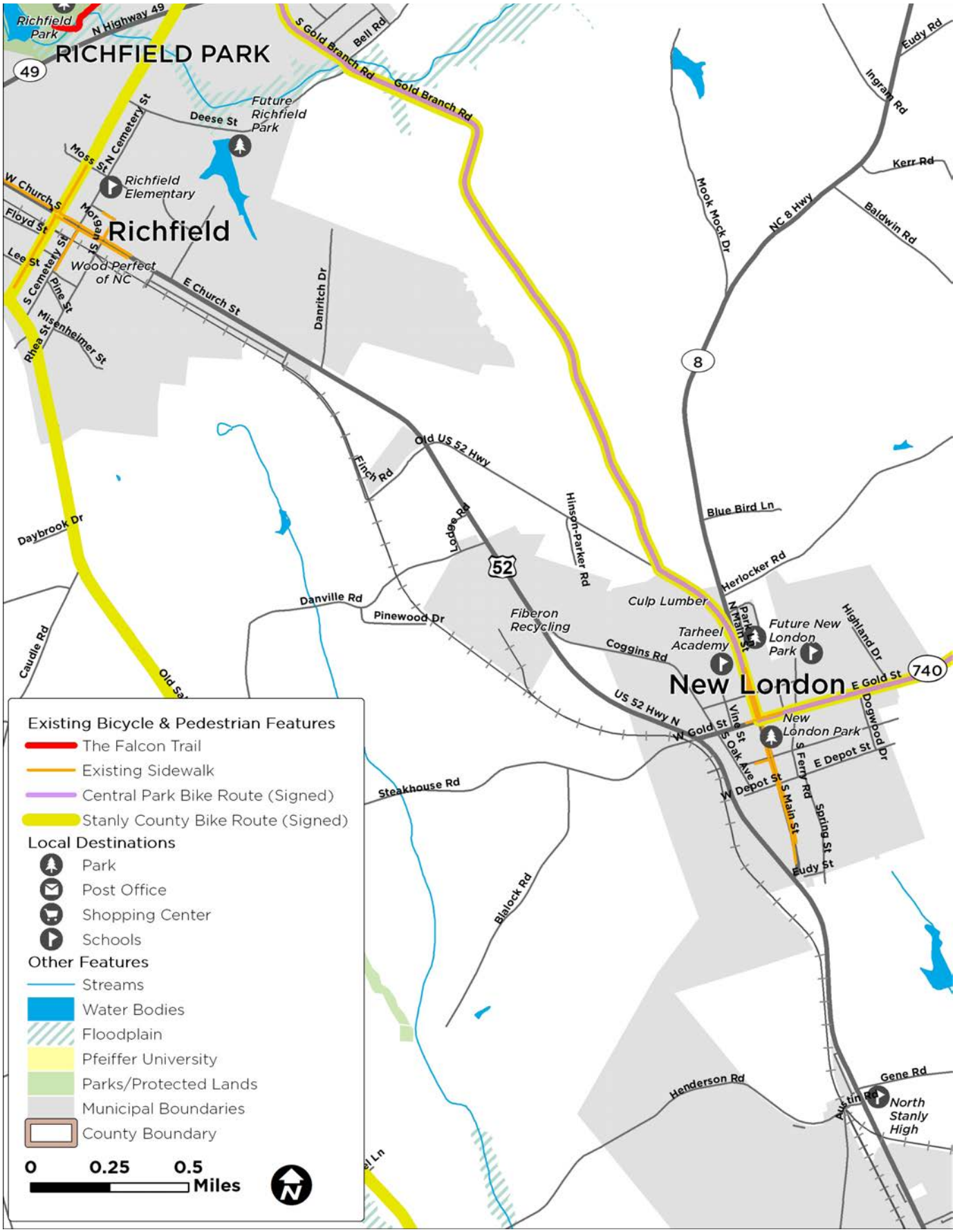
Map 2.1 - Existing Facilities & Destinations: Overview

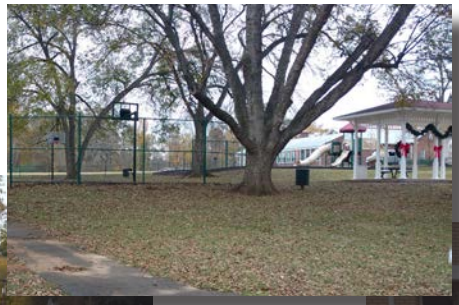


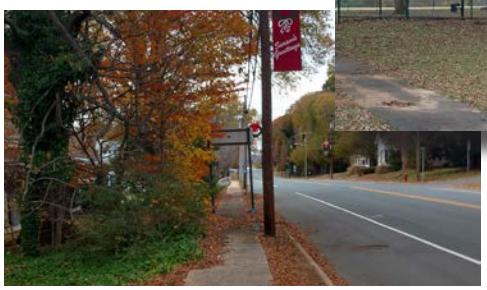
Map 2.2 - Existing Facilities & Destinations: Misenheimer and Richfield



Map 2.3 - Existing Facilities & Destinations: New London and Richfield







Downtown New London has a small sidewalk network with the Main Street sidewalks serving as the spine, linking residents living along adjacent neighborhood streets to the downtown commercial area, New London Park, and the Tarheel Challenge Academy. These are examples of destinations that are already partly walkable and accessible, but there are opportunities to improve safety and access by providing crossing improvements and additional connecting walkways from more areas of town.

A safe, accessible corridor to reach North Stanly High School does not currently exist.

High speed roads such as US 52 and NC 49, with little to no walking/biking infrastructure are barriers to walking and bicycling.

The Main Street/US 52 intersection in Richfield includes sidewalk connectivity but no crossing facilities. Crossing improvements to get across US 52 are lacking here and in general.

Pedestrian infrastructure is most notable in and around Pfeiffer University campus. Two pedestrian hybrid beacons connect the east and west sides of campus across US 52 (one pictured below). Connectivity to the Falcon Trail on campus is pictured to the right.

LACK OF BICYCLE FACILITIES

Besides mountain biking along the Falcon Trail and signage for the Central Park Bike Route system there are no other physical facilities specifically for bicycles. However, there are still roads that can serve bicyclists — these include some of the lower-volume, lower speed residential streets, such as New London's May Street, Church Street, Ferry Road, and other small neighborhood streets that connect to them. The issue is that outside this "island" of residential streets, traffic volumes and speeds become higher. While streets like Gold Street (New London), Gold Branch Road (Richfield) and Wesley Chapel Road (Misenheimer) may be suitable for bicyclists accustomed to sharing the road with traffic, they are **less suitable in their current condition for inexperienced bicyclists, particularly for children.**

LIMITED PEDESTRIAN FACILITIES

As noted in Table 2.2 on page 15, a small sidewalk network is present in the center of New London, Richfield, and throughout Pfeiffer University campus. The Falcon Trail provides a beautiful hiking/mountain biking connection between Misenheimer/Pfeiffer University to Richfield Park.

In addition to improving overall connectivity, there is room for improvement in design - many sidewalks are built along roadways with no buffer space between the sidewalk and road. Most sidewalks are ADA accessible. As older sections of sidewalk are improved/replaced, curb ramps and truncated domes, such as those that were recently installed at the Main Street/Gold Street intersection in New London, should continue to be incorporated.

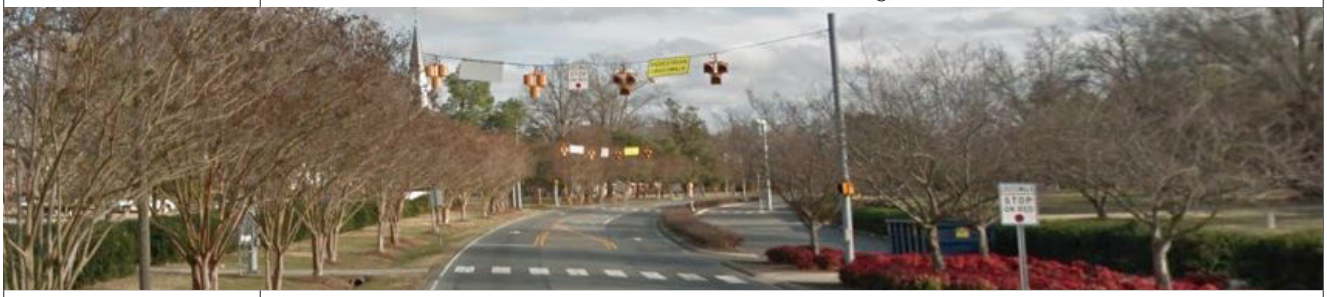
Above (Google Street View): Example a narrow sidewalk lacking buffer space between high speed traffic along US 52 (Church Street) in Richfield.

Below: A good example of a well-marked crosswalk and signage for the Falcon Trail Crossing of Culp Road

Below: Gold Street in downtown New London lacks pedestrian facilities, but has wide pavement width and carries relatively low traffic volumes and speeds.

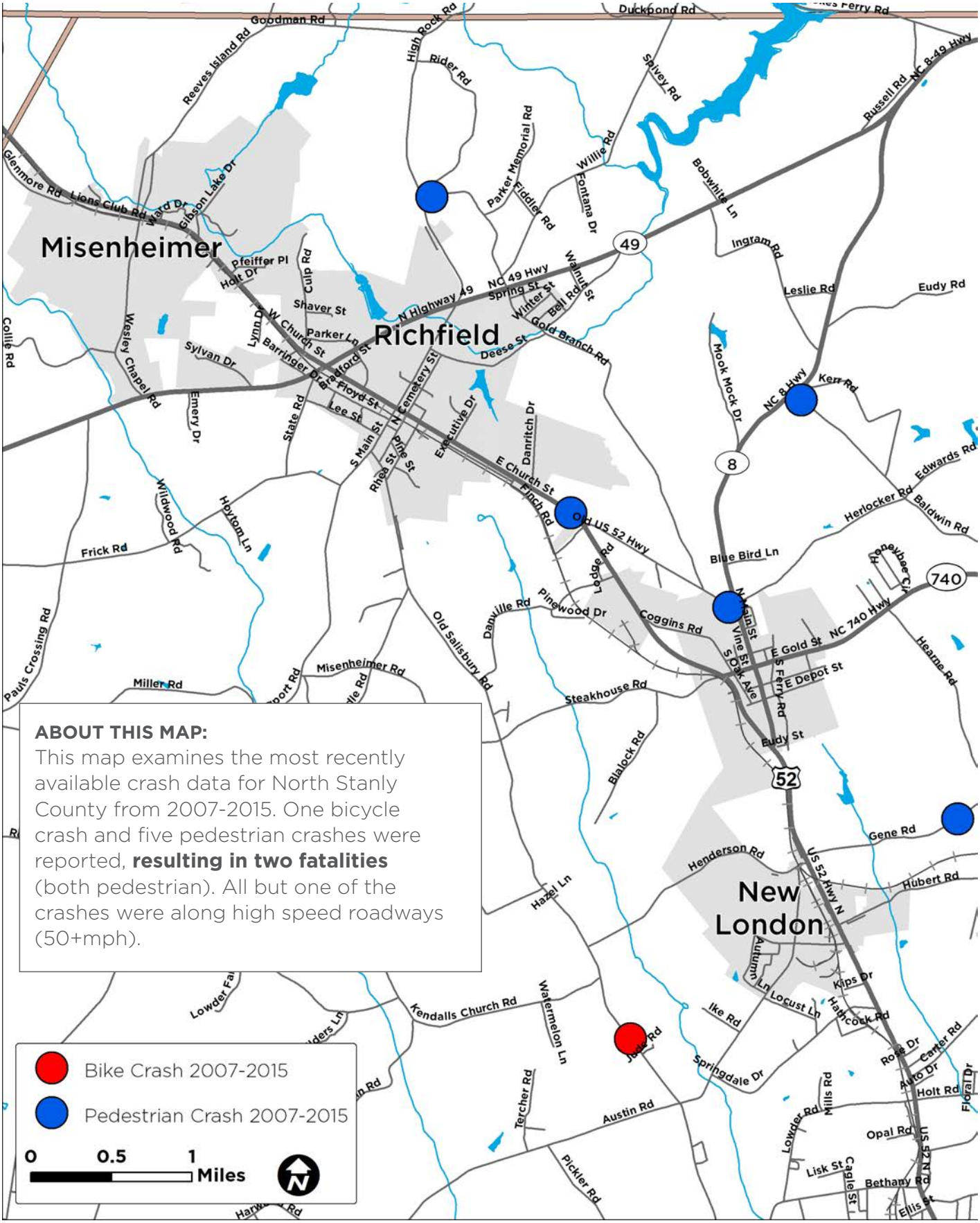
Below: A good example of ADA-compliant curb ramps recently installed at the Gold Street/Main Street intersection in downtown New London.

Table 2.3 Inventory of Existing Pedestrian Crossing Facilities

Facility Type/ Location	Notes
Pfeiffer University pedestrian hybrid beacons	Two pedestrian hybrid beacons (separated by 350 feet) connect the two sides of Pfeiffer University across US 52 in Misenhimer. During fieldwork, this location included the highest observed pedestrian activity in the area due to Pfeiffer University. These are the only marked crossings of US 52 in the study area. Here, the pedestrian hybrid beacons facilitate the crossing of three lanes that include traffic volumes of approximately 9,500 AADT and a speed limit of 35 mph. Unused space in the area of the center turn lane was noted at each crossing,
	
Pfeiffer University crosswalks	This pedestrian walkway and crosswalks that bookend the walkway connect the central part of campus (to the west) to the Pfeiffer University athletic fields and facilities (to the east). The crosswalk to the left is raised to slow motorist traffic along Merner Terrace. The east end of the walkway connects to the Falcon Trail as it crosses through campus. Both crosswalks include high visibility markings along with pedestrian warning signage in both directions.
	
Crossing facilities in downtown New London	Crossing facilities in downtown New London at the Main Street/Gold Street intersection include marked crosswalks and recently installed curb ramps with truncated domes. No pedestrian signals are found at this intersection. Main Street is two lanes with a left turn only lane that appears at the intersection. Main Street includes traffic volumes of approximately 4,500 AADT and a speed limit of 25 mph. Gold Street is two lanes with traffic volumes of approximately 3,000 AADT (mostly E. Gold Street) and a 35 mph speed limit.
	
Marked crosswalk for the Falcon Trail crossing of Culp Rd	The Falcon Trail's marked crosswalk of Culp Road includes pedestrian warning signage and high visibility markings. Culp Road carries low traffic volumes (less than 600 AADT) with a speed limit of 35 mph.
	

Images from Google Street View.

Map 2.4 - Bicycle and Pedestrian Crashes



ABOUT THIS MAP:
This map examines the most recently available crash data for North Stanly County from 2007-2015. One bicycle crash and five pedestrian crashes were reported, **resulting in two fatalities** (both pedestrian). All but one of the crashes were along high speed roadways (50+mph).

Map 2.5 - NCDOT Owned Roads

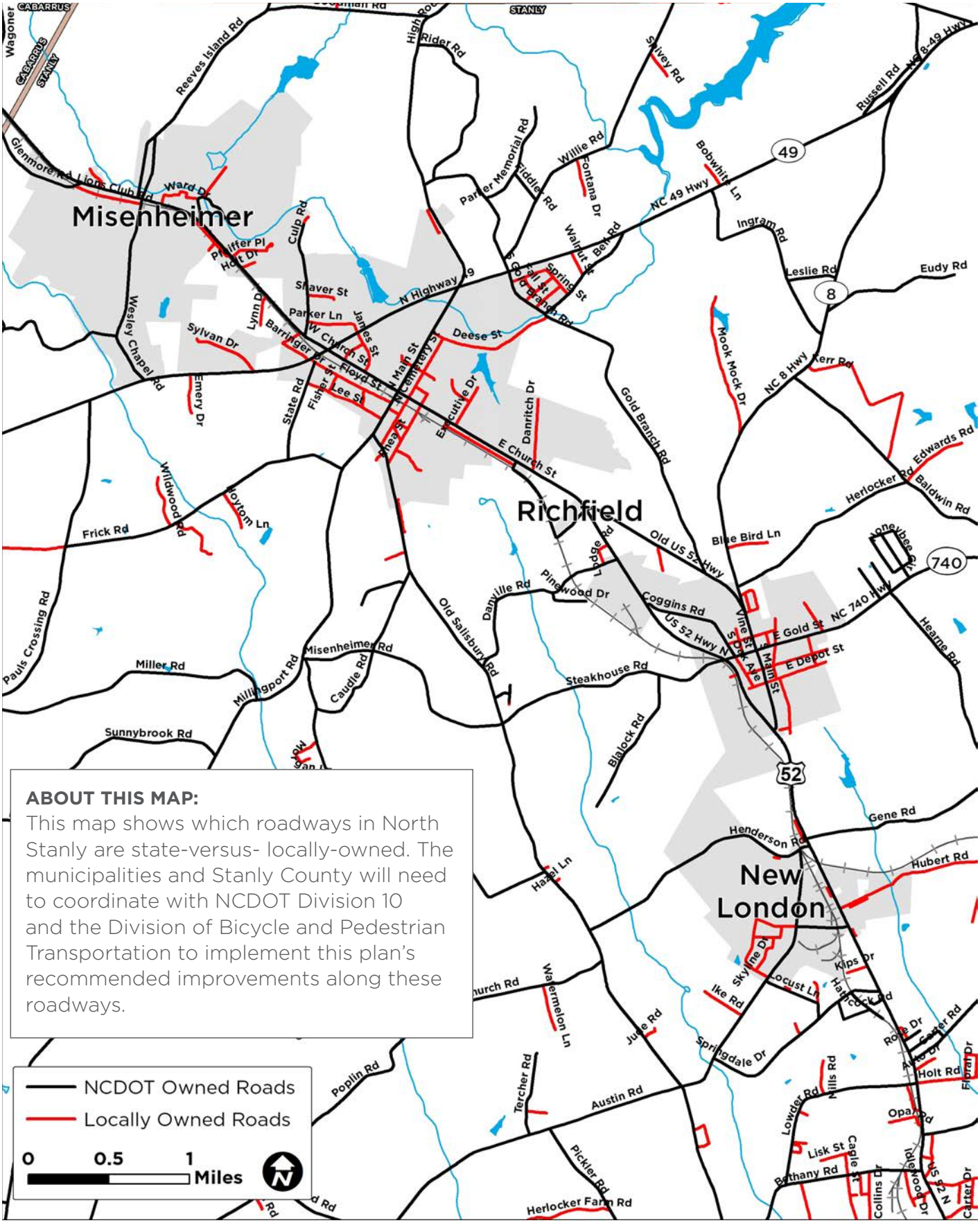


Table 2.4 Roadway Inventory

Street Name	Appx. Road Width (ft)	Predominant Lane Configuration	Curb & Gutter (Y/N)	AADT*	Speed Limit
US 52 (North Stanly High/Gene Road to S. Main Street)	66-68’	5-lane (including center turn lane)	Yes	14,000	55 MPH
					
US 52 (S. Main Street to W. Gold Street)	68’	5-lane (including center turn lane)	Yes	9,600	35 MPH
					
US 52 (W. Gold Street to NC 49)	71’	5-lane (including center turn lane)	Partially - from Lavasque Street to NC 49	12,000	55 MPH
					
US 52 (NC 49 to Cabarrus County line)	27’-34’	Transitions between 2-lane and 3-lane sections	No	7,000-10,000	35-45 MPH
					

**Annual Average Daily Traffic (AADT) traffic volumes from NCDOT Traffic Survey Group (2016)*
Images from Google Street View.

Table 2.4 Roadway Inventory *(continued)*

Street Name	Appx. Road Width (ft)	Predominant Lane Configuration	Curb & Gutter (Y/N)	AADT*	Speed Limit
NC 49	22’	One travel lane each direction	No	5,000-7,500	45-55 MPH
					
Main Street (New London)/NC 8	44’	One travel lane each direction, parallel parking on both sides	Yes	4,400	25-35 MPH
					
Main Street (Richfield)	18-28’	One travel lane each direction	Partial (where sidewalk exists)	1,500-2,500	35-45 MPH
					
Gold Street/NC 740 (New London town limits)	38’	One travel lane in each direction	Yes	2,000-3,000	35 MPH
					

**Annual Average Daily Traffic (AADT) traffic volumes from NCDOT Traffic Survey Group (2015)*
Images from Google Street View.

RELATED PROGRAMS & PLANS

A review of previous programs and plans related to the North Stanly County is included below. The purpose of the plan review is to identify previous pedestrian and bicycle recommendations and other relevant information in and near the study area. Although this is not an exhaustive list, these plans were the most relevant to the planning and development of bicycle and pedestrian facilities.

EXISTING PROGRAMS

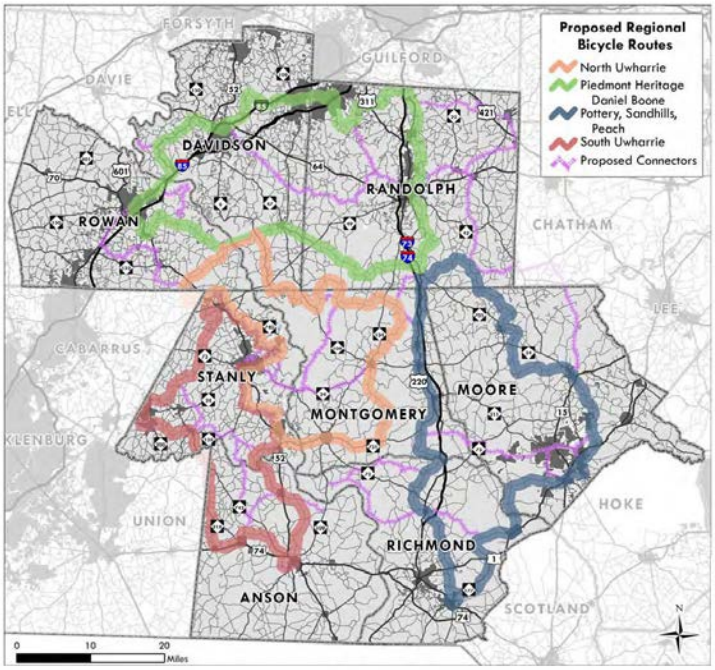
Since the Falcon Trail opened in 2016, multiple walks, runs, and rides have been organized to connect local residents to the 2.7 existing miles of trail. Trail events have been organized by the Friends of North Stanly Trails and Parks and the Carolina Thread Trail. Presently, Falcon Trail events are the extent of current programming specific to walking and bicycling in North Stanly County.

NEW LONDON PARK PROJECT (ONGOING)

A 22 acre park in New London between N. Main Street and the Christ the King Christian School is currently being planned by the Town of New London. Walking/jogging and bicycle trails are planned throughout the property, while preserving the tree and plant life. Two small picnic shelters will be developed along with a large multipurpose covered shelter with restroom facilities. Outdoor playground areas and a multipurpose field are planned for development as well. This project is tentatively scheduled to be completed by October 2020, but may be completed before this date.

CENTRAL PARK REGIONAL BICYCLE PLAN (2014)

The Central Park region of North Carolina is comprised of eight counties in the south central Piedmont: Anson, Davidson, Montgomery, Moore, Randolph, Richmond, Rowan, and Stanly. The most significant recommendations from this plan that are relevant to North Stanly County include North Uwharrie and South Uwharrie routes that are recommended through the North Stanly County study area. These Central Park bike routes have subsequently been signed, and also overlap with county route #2 (see following page).



Central Park Regional Bicycle Plan recommended (and subsequently signed) recreational, rural bicycle routes.

Bicycle facility recommendations through North Stanly County include paved shoulder along the following roads;

» Glenmore Road, US 52, Wesley Chapel Road, Reeves Island Road, High Rock Road, Rider Road, Gold Branch Road, NC 49, Pauls Crossing Road, Frick Road, Millingport Road, Old US 52, Gold Street, and Hearne Road toward Albemarle

and bike lanes along the following roads;

» E. Gold Street and N. Main Street through downtown New London

STANLY COUNTY COMPREHENSIVE TRANSPORTATION PLAN (2012)

This is a long-range, multi-modal transportation plan covering needs of the county through 2035. Modes of transportation covered in this plan include highway, bicycle, pedestrian, rail, and public transportation.

The bicycle map included in the plan shows corridors for on-road bicycle facilities in North Stanly County that need improvement. These corridors are from the 'Bicycling Stanly County' Map created in 2000, that are still signed today.

A multi-use path recommendation is included between Richfield and Misenheimer - this has since been implemented as part of the Falcon Trail.

For pedestrian facilities, improvements are recommended along US 52 in Richfield and Misenheimer, as well as along Cemetery Street, Main Street, Rhea Street, and Morgan Street in Richfield.

ALBEMARLE, BADIN, AND NEW LONDON COMPREHENSIVE TRANSPORTATION PLAN (2012)

This is a long-range, multi-modal transportation plan that complements the Stanly County CTP and covers the needs of Albemarle, New London, and Badin through 2035. Modes of transportation covered in this plan include highway, bicycle, pedestrian, rail, and public transportation.

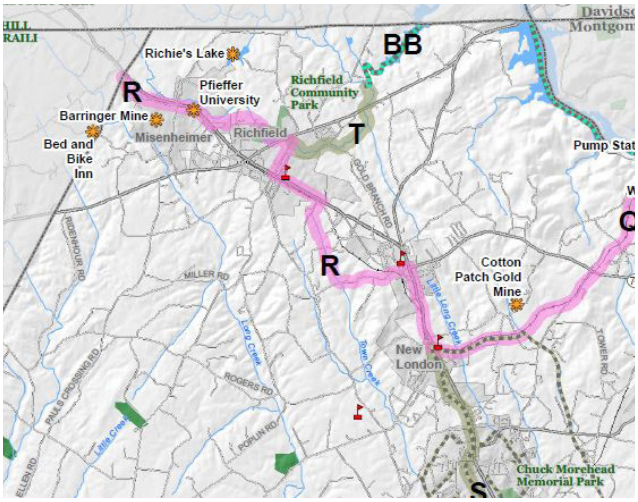
The bicycle map included in the plan shows corridors for on-road bicycle facilities in New London that need improvement, including N. Main Street, Gold Street, and Hearne Road. These corridors are from the 'Bicycling Stanly County' Map created in 2000, that are still signed today.

A multi-use path recommendation is included along the inactive rail line south of North Stanly High School from US 52 to Mountain Creek and south along Mountain Creek and US 52 toward Albemarle.

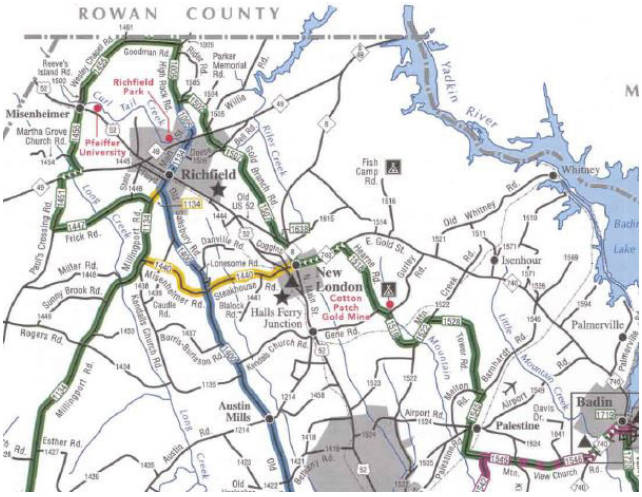
For pedestrian facilities, improvements are recommended along US 52 from S. Main Street in New London to North Stanly Highs School and the inactive rail line at US 52 (with multi-use path recommendations included in the bicycle map as highlighted above).

CAROLINA THREAD TRAIL MASTER PLAN FOR STANLY COUNTY (2010)

Key recommendations for the Carolina Thread Trail Master Plan include a conceptual trail alignment linking Badin, New London, Richfield, and Misenheimer through North Stanly County as well as the creation of a 'Friends of the Carolina Thread Trail' organization. Since 2010, the opening of the Falcon Trail and the creation of the 'Friends of North Stanly Trails and Parks' organization have been significant steps toward creating opportunities for walking and biking in North Stanly County.



Conceptual trail alignment recommendations from the Carolina Thread Trail Master Plan for Stanly County (2010).



Bicycle Routes detailed (and signed) in the 'Bicycling Stanly County' map created in 2000.

BICYCLING STANLY COUNTY MAP (2000)

Created in 2000 and subsequently signed, the 'Bicycling Stanly County' map includes three county-wide routes (as well as State Bike Route 6 - Piedmont Spur). Routes 2 and 3 connect through North Stanly County and are still signed today. Map features include route descriptions, points of interest, and safety tips. County route #2 overlaps with North/South Uwharrie Loop routes of the Central Park bike route system through North Stanly (see previous page).

PUBLIC INPUT

PUBLIC INPUT ON EXISTING CONDITIONS

Public input for this plan was collected through the public comment form and open house public workshops. Steering committee members helped to spread the word about the plan in order to garner responses about existing conditions and areas for improvement. During public meetings, steering committee members and residents marked up maps to indicate corridors and intersections in North Stanly County that were in need of pedestrian and bicyclist improvements.

PUBLIC COMMENT FORM RESULTS

Almost all respondents rated walking and bicycling conditions in North Stanly County as "poor" (50-54%) or "fair" (41%-46%), indicating a significant need for improvement. 93% of respondents agreed with this need, indicating that improving conditions for walking and bicycling in North Stanly County was "very important" (62%) "somewhat important" (31%).

More than 200 residents, property owners, employees, and visitors contributed their input. The charts on the following pages summarize public input collected during this planning process in 2018.

Figure 2.1 How do you rate present WALKING conditions in North Stanly County?

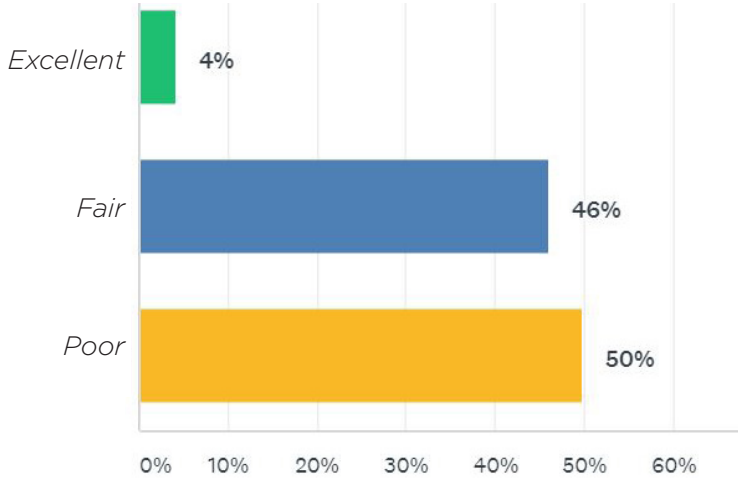


Figure 2.2 How do you rate present BICYCLING conditions in North Stanly County?

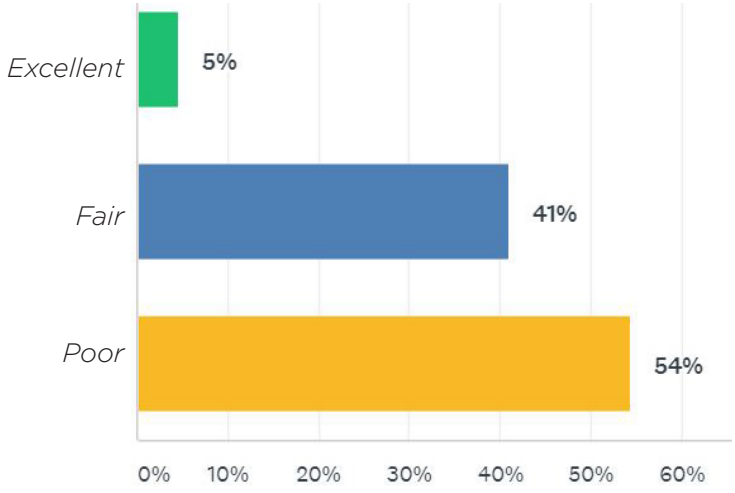


Figure 2.3 How important to you is improving bicycling and walking conditions in North Stanly County?

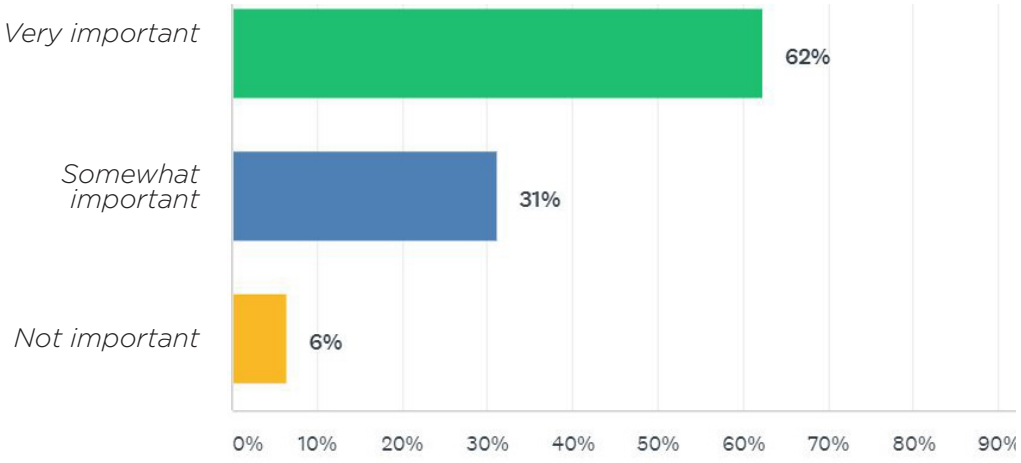


Figure 2.4 What should be the most important goals and outcomes of this plan? *(check all that apply)*

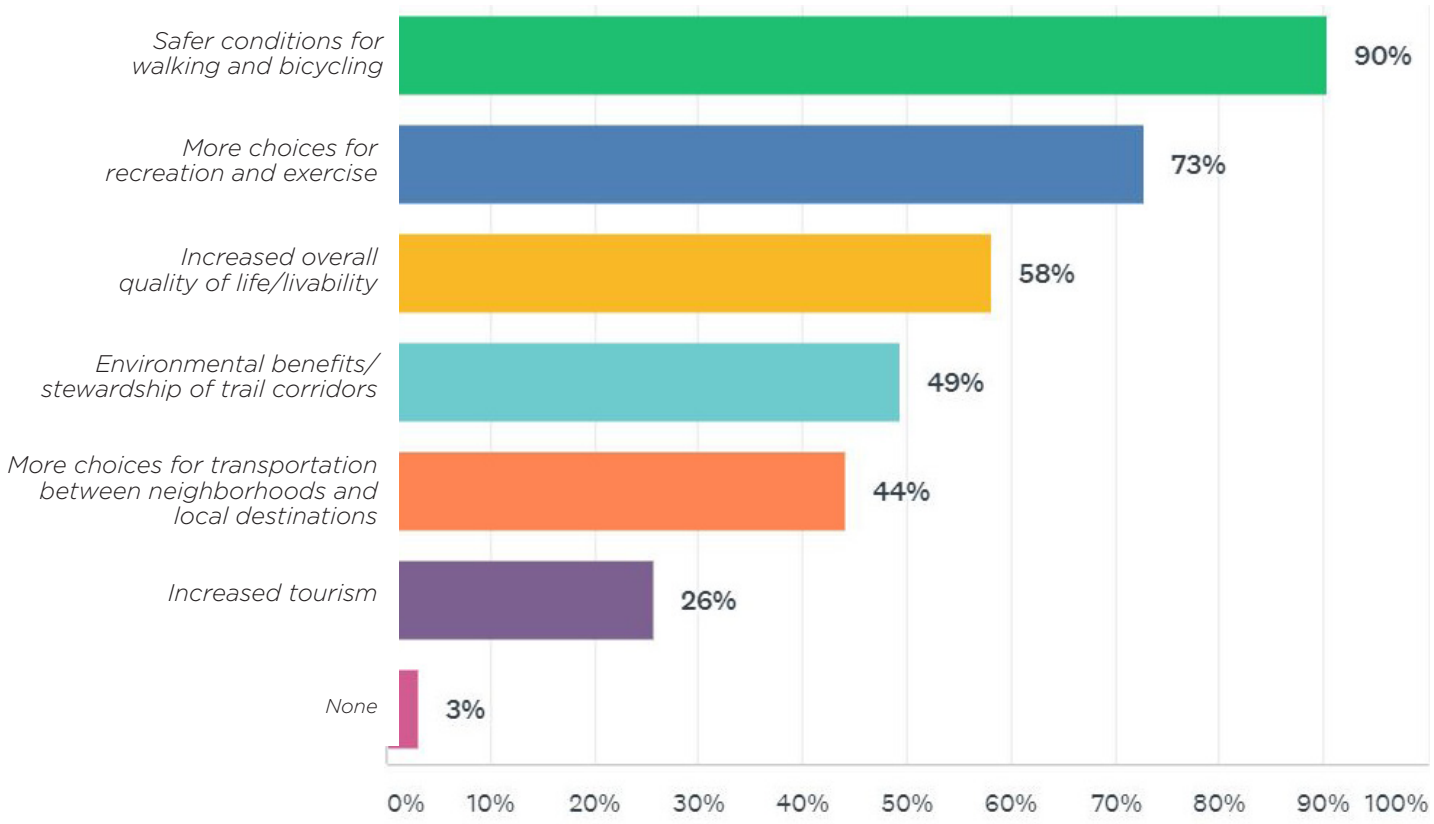


Figure 2.5 When you ride your bicycle or walk in North Stanly County, what is the primary purpose of your trip? *(check all that apply)*

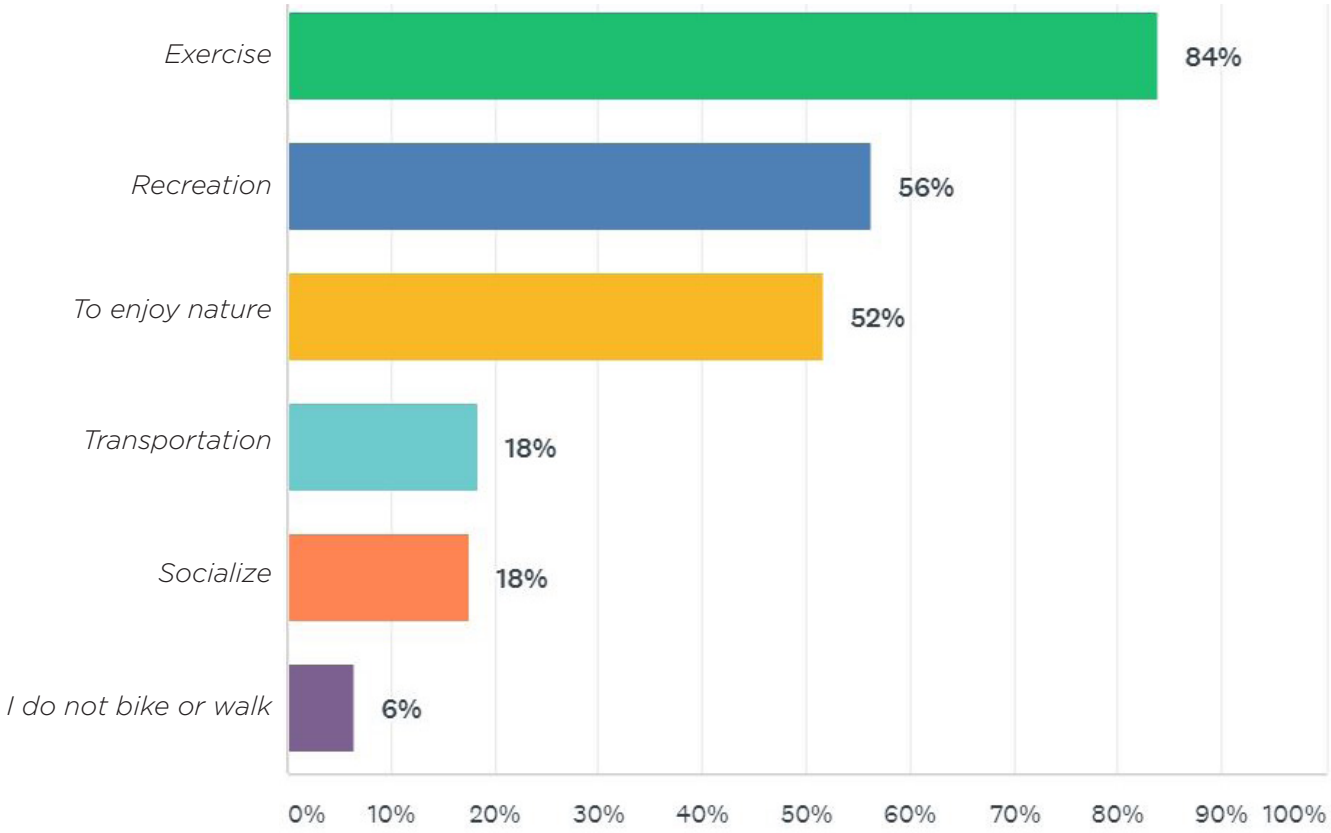


Figure 2.6 How often do you bike or walk in North Stanly County?

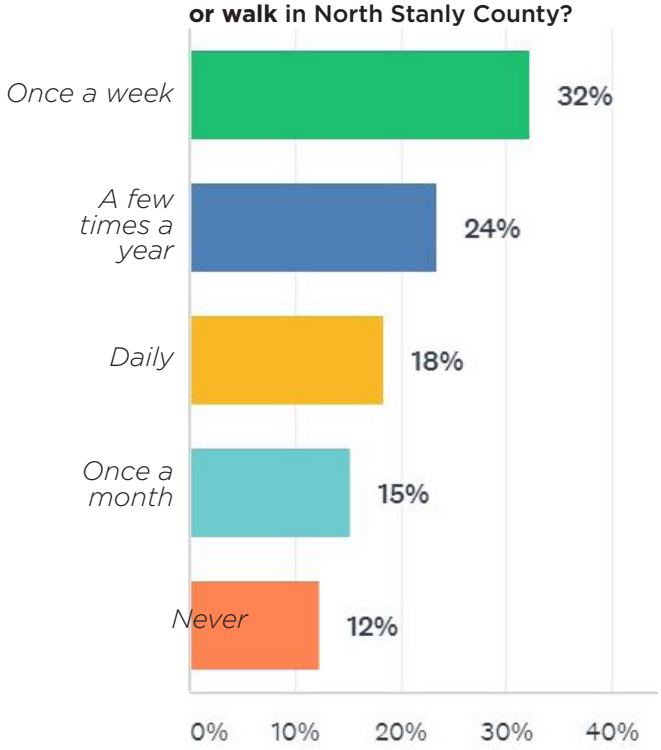


Figure 2.7 Would you walk and/or ride your bike more often if there were more sidewalks and bikeways in North Stanly County?

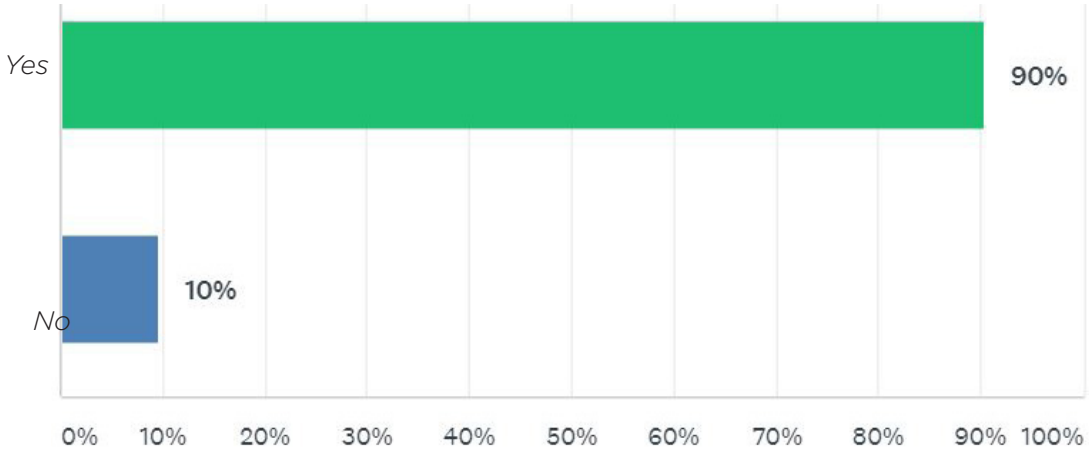


Figure 2.8 What destinations would you most desire to reach by bicycling or walking? Please rank. Note - weighted average scores are shown below for display purposes - the higher the ranking, the higher the weighted average score displayed below.

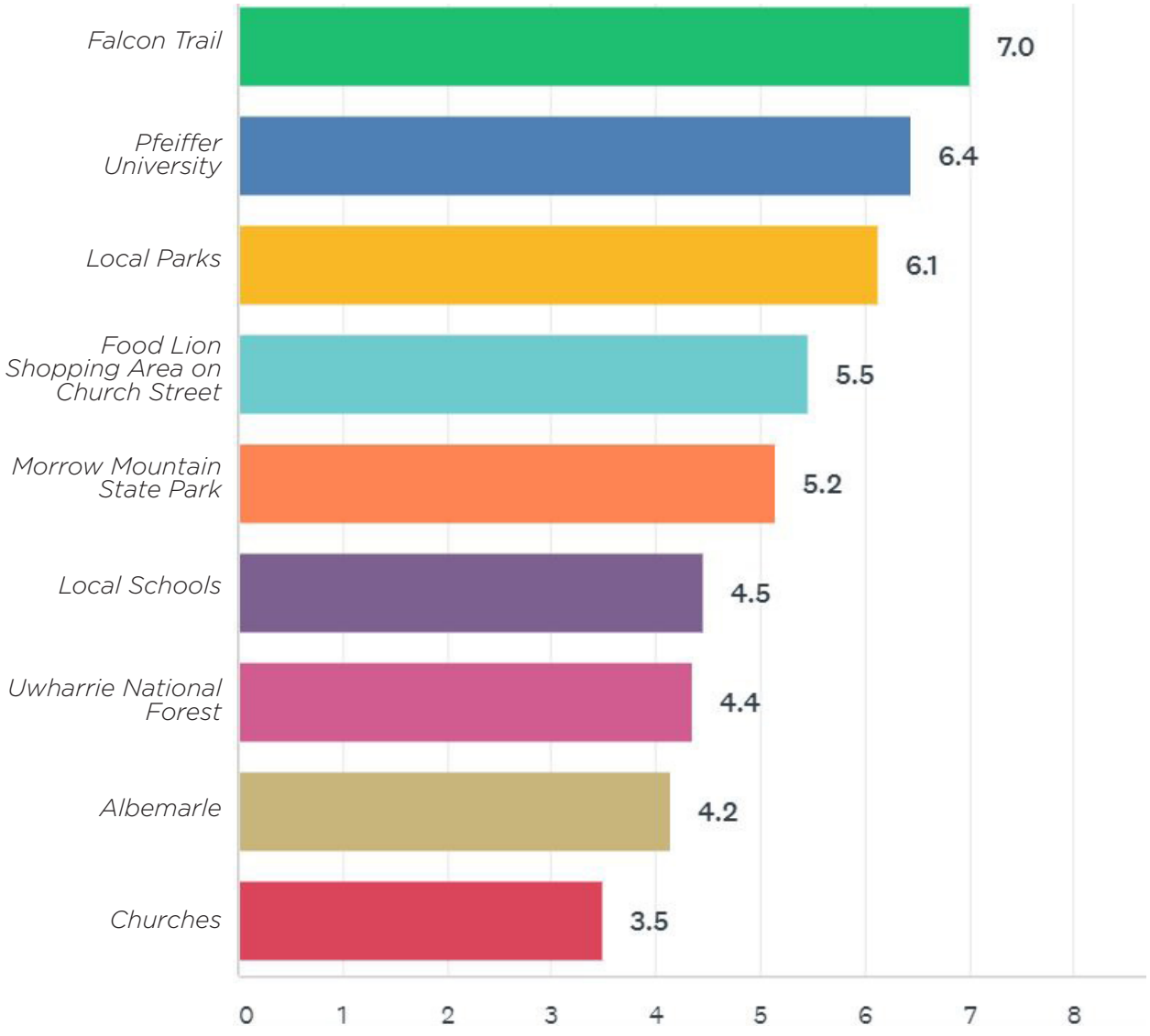


Figure 2.9 What do you think are the factors that most discourage bicycling or walking in North Stanly County? (*Please select up to 5 factors)*

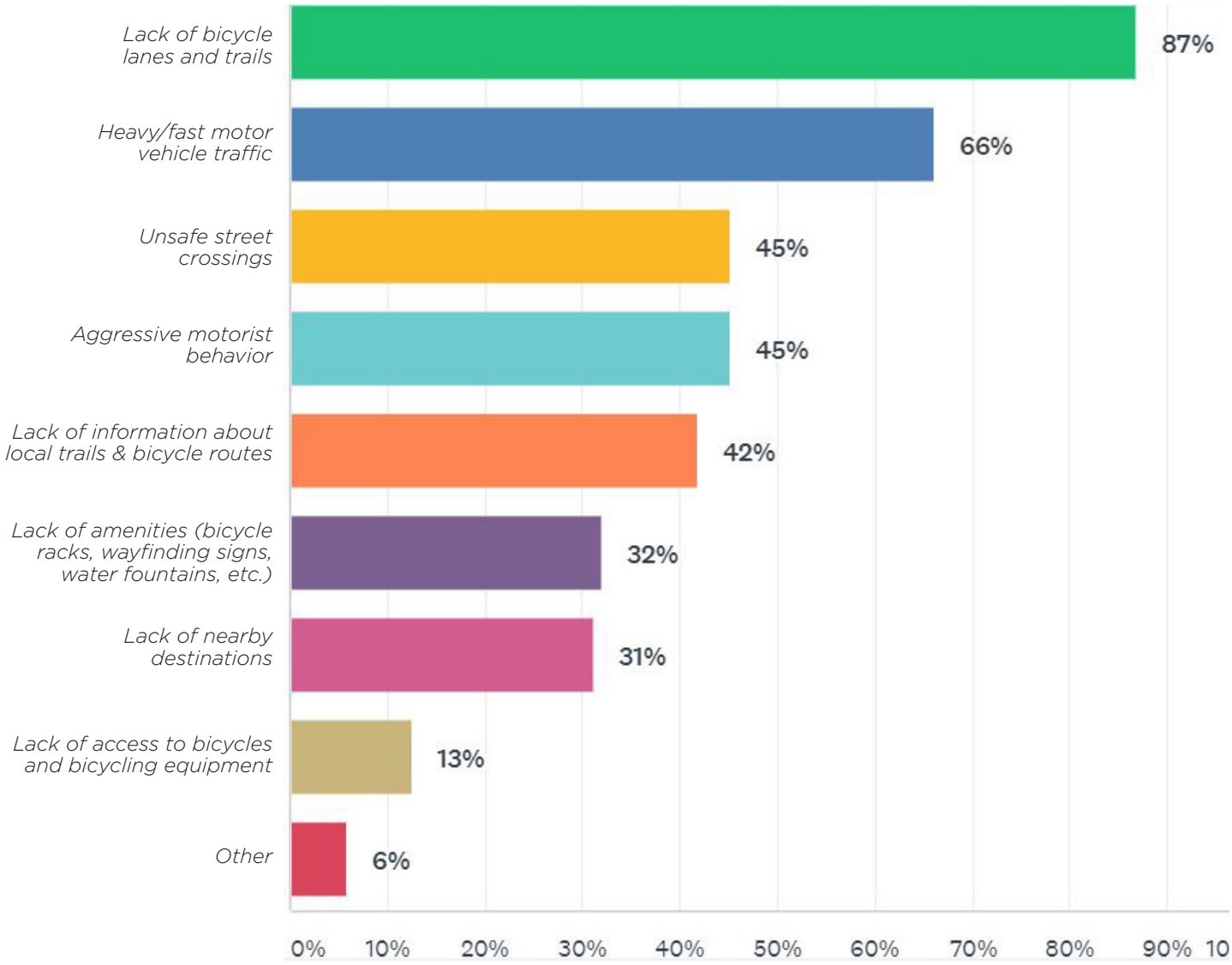
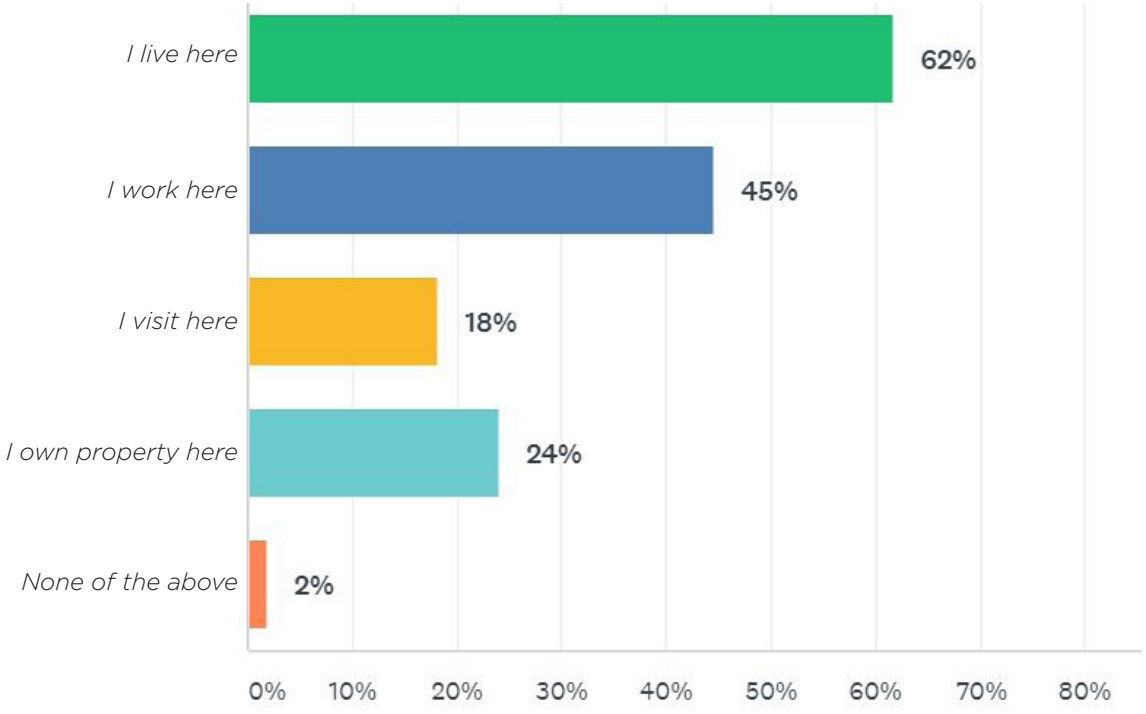


Figure 2.10 What are the top three locations for improving conditions for walking and bicycling in North Stanly County? The results to this open-ended question fell under three central themes:

1. Complete the Falcon Trail
    - » Connect to New London and North Stanly High School
    - » Connect to Old Whitney, Badin, and Morrow Mountain State Park
    - » Connect to Albemarle
    - » Connect north to Gold Hill
2. Improve Major Roadways, especially US 52
    - » Other barrier roads include NC 49, NC 8, NC 740, and Old Salisbury Road
    - » Complete the sidewalk connection between Misenheimer and Richfield along US 52
3. Improve rural bike route options
    - » Wesly Chapel Road
    - » Pauls Crossing Road
    - » Gold Branch Road
    - » Old Millingport Road

Figure 2.11 What is your relationship to North Stanly County?



CHAPTER THREE: RECOMMENDATIONS

Overview | Basis of Recommendations | Bicycle and Pedestrian Facilities | Types of Bicyclists | The Bicycle and Pedestrian Network | Program Recommendations | Policy Recommendations

OVERVIEW

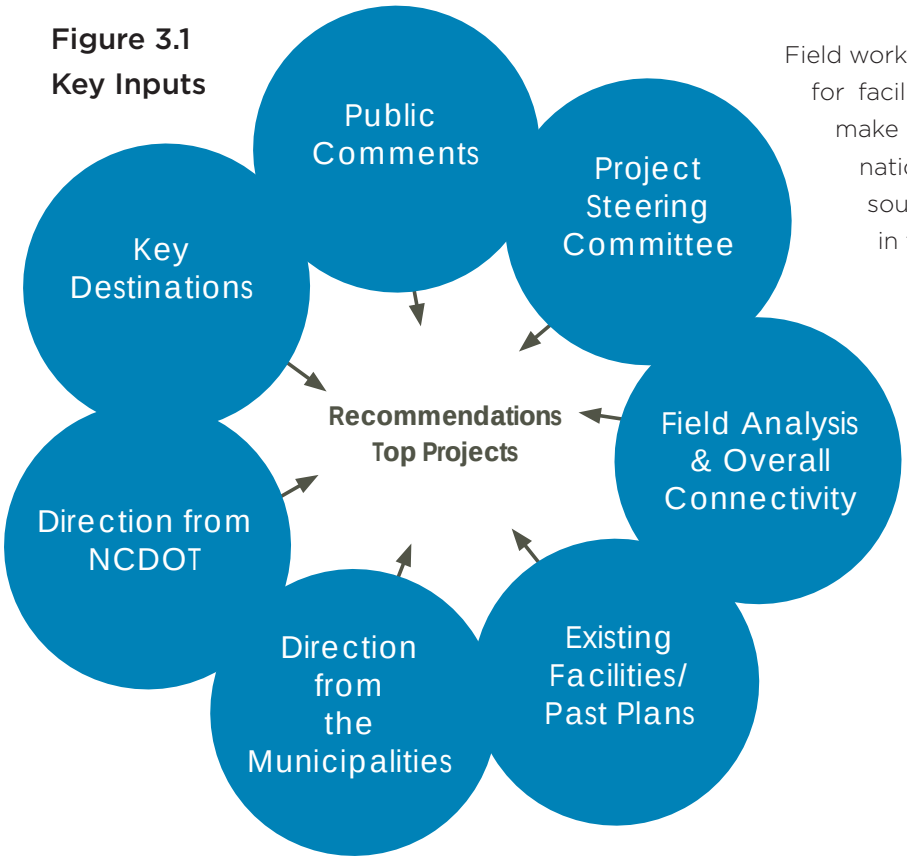
This chapter outlines the recommendations for making North Stanly County safer and more enjoyable for walking and bicycling, with improved connections within Misenheimer, Richfield, New London and beyond. A diverse mix of facilities are recommended to create these connections, including sidewalks, crossing improvements, on-road bicycle facilities, and shared use paths. The chapter concludes with program and policy recommendations to further meet the goals of this plan.

BASIS OF RECOMMENDATIONS

Recommendations were developed based on information from several sources:

- Input from the town staff and Steering Committee
- Public input obtained through public comment forms and in-person workshops
- Previous plans and studies
- Review of existing bicycle and pedestrian facilities
- Noted bicycle and pedestrian destinations
- Consultant's field analysis

Figure 3.1
Key Inputs



Field work examined the potential and need for facilities along key corridors and to make connections between key destinations in North Stanly County. Input sources for the plan are summarized in the diagram to the left.

Recently widened rural roadway in North Stanly (Hearne Road) observed during field analysis.

BICYCLE AND PEDESTRIAN FACILITIES

The descriptions here through page 39 offer a brief overview of the primary facility types recommended in this plan, and an overview of the main types of bicyclists. **For more information on facility design, please see the Small Town and Rural Multimodal Network Design Guide (www.ruraldesignguide.com) as well as a list of design resources in Appendix A. Also see the NC Terminology for Active Travel guide for further information on facility types - https://connect.ncdot.gov/projects/BikePed/Documents/NC%20Terminology%20for%20Active%20Travel.pdf.**

Sidewalks

Sidewalks are a fundamental component of a pedestrian network.

- Sidewalks in North Stanly should be at least 5' wide, and, where possible, should include a buffer strip between the sidewalk and roadway.
- Areas of higher pedestrian volume may require 7' wide sidewalks, and sidewalks serving as part of the shared use path system should be at least 10' in width (sidepaths).

Sidewalk example on Main Street in New London

Crossing Improvements

Standard crossing improvements, such as crosswalks and curb ramps, help facilitate and guide pedestrians on sidewalks and sidepaths across intersections and side streets, while also visually highlighting pedestrian space to motorists.

- Signage should be included on side streets to alert approaching drivers to look both ways for crossing pedestrian and bicycle traffic before turning.
- Crossings that link to sidewalk on each side of the road should possess curb cuts that comply with ADA requirements, including ramps, landings, slope, and other elements. In-roadway signage can be used to remind drivers of the state law to yield to pedestrians in the crosswalk.
- Some of these treatments have been proven to reduce crashes, as shown in the 2007 FHWA Crash Reduction Factors Study (http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_tctpepc/).

High-visibility crossing improvements use continental markings (see image below), and can be supplemented with a variety of treatments, such as pedestrian countdown signals, pedestrian refuge islands, signage, and other treatments that facilitate safe crossings at busy intersections.

High-visibility crosswalk at Pfeiffer University (US 52)

Shared Use Paths (Independent Right-of-Way)

A shared use path provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. Shared use paths can provide a low-stress experience for a variety of users using the network for transportation or recreation.

- Paths operating in independent corridors are fully separated from traffic. Facility provision is based on opportunity and connectivity rather than roadway context. In some cases an independent corridor may offer similar connectivity and access to destinations as a nearby roadway.
- Serves connections independently of the street network. May function as a network alternative road and highway connections.
- Generally appropriate outside of built-up areas, and also as a corridor connection within built-up areas.

Shared use path (independent ROW) example, paved shared use path.

Shared use path example (independent ROW) example, unpaved shared use path (The Falcon Trail).

Sidepaths (Roadway Right-of-Way)

A sidepath is a bidirectional shared use path located immediately adjacent and parallel to a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small town community character.

- Most appropriate in corridors with few driveways and intersections.
- For use on roads with high volumes, and moderate to high speed motor vehicle traffic.
- For use on arterial links on the regional or local biking and walking network
- For use inside of built up areas to provide a dedicated space for pedestrians.

Sidepath example with ample buffer space.

Separated Bike Lane example

Separated Bike Lane example

Separated Bike Lanes

A separated bike lane is a facility for exclusive use by bicyclists that is located within or directly adjacent to the roadway and is physically separated from motor vehicle traffic with a vertical element.

- For use on roads with high motor vehicle volumes, and moderate to high speed motor vehicle traffic.
- Serves primary connections on major roads through and across communities.
- For use inside built-up areas where a moderate to high volume of bicyclists and pedestrians is expected.

Striped 'Buffered' Bike Lane example

Bike Lane example

Bicycle Lanes

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and optional signs. A bike lane is located directly adjacent to motor vehicle travel lanes and follows the same direction as motor vehicle traffic.

- Appropriate on streets with moderate volumes and moderate speed. May function on multi-lane streets with heavy traffic, but fails to provide a low-stress experience in this condition, which would appeal to larger numbers of bicyclists.
- Serves moderate distance trips connecting local bikeway routes to regional corridors.
- For use inside, or between, built up areas where increased pedestrian and/or bicycle activity is present or expected.

Example Paved Shoulders

Paved Shoulders

Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation.

- Appropriate on roads with moderate to high volumes and speeds and on roadways with a large amount of truck traffic. May function on multilane roads with heavy traffic, but fails to provide a low-stress experience in this condition.
- Serves long-distance and regional travel.
- Appropriate outside and within built up areas, near school zones and transit locations, and where there is expected pedestrian and bicycle activity. Walkable shoulders should be provided along both sides of county roads and highways routinely used by pedestrians.
- If roadways are widened to accommodate increasing traffic volumes, or as curb and gutter is added, upgrades to another bicycle facility should be provided, such as bicycle lanes, separated bicycle lanes, or road-separated sidepaths, depending on the context of the roadway.
- *Note: Paved shoulders service bicyclists/pedestrians as an auxiliary function, in addition to their many other primary purposes (emergency support, roadway maintenance prevention, etc.). These facilities are not designed / implemented as solutions, but simply as low-cost, short-term improvements where more appropriate bicycle facilities (such as separated bicycle lanes/sidepaths) are not feasible.*

Example Advisory Shoulders

Advisory Shoulders

Advisory shoulders create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement marking and optional pavement color. Motorists may only enter the shoulder when no bicyclists are present and must overtake these users with caution due to potential oncoming traffic.

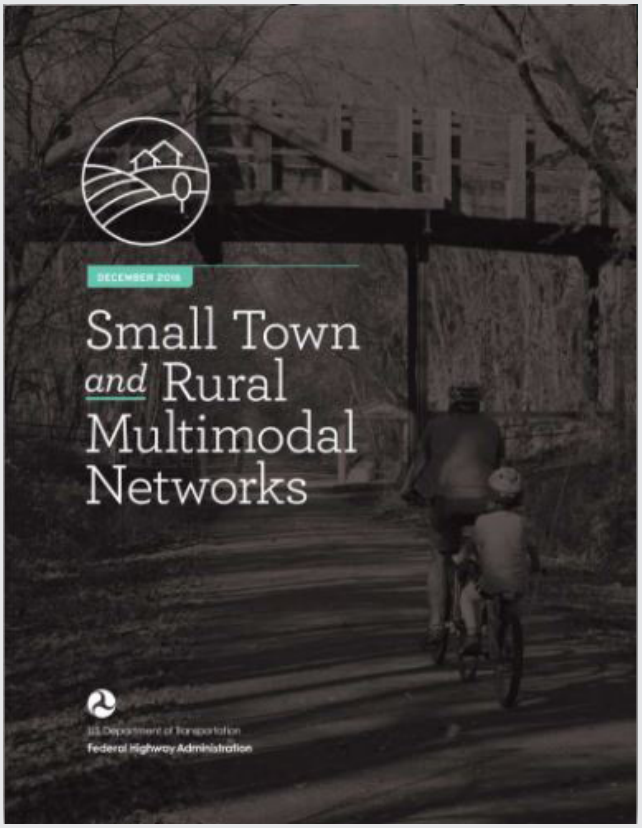
- Most appropriate on streets with low to moderate volumes and moderate speed motor vehicles.
- Applies to constrained connections between built up areas.
- For use outside, between, and within built up areas with bicycle and pedestrian demand and limited available paved roadway surfaces.
- *Note: Advisory shoulders are a new treatment type in the United States and no performance data has yet been collected to compare to a substantial body of international experience. In order to install advisory shoulders, an approved Request to Experiment is required as detailed in Section 1A.10 of the MUTCD. FHWA is also accepting requests for experimentation with a similar treatment called "dashed bicycle lanes."*

Example of shared-lane markings on pavement.

Shared-Lane Markings (Sharrows)

These pavement marking symbols (also known as sharrows) are useful in locations where there is insufficient width to provide bike lanes. The marking also alerts road users to the lateral position bicyclists are likely to occupy within the traveled way, therefore encouraging safer passing practices. Shared-lane markings may also be used to reduce the incidence of wrong-way bicycling. Shared-lane markings may be applicable in the following scenarios:

- In a shared lane with adjacent on-street parallel parking, to assist bicyclists with lateral positioning that reduces the chance of a bicyclist impacting the open door of a parked vehicle.
- On wide outside lanes, to indicate more appropriate positioning away from the curb or the edge of the traveled way.
- On a section of roadway with shared lanes, to fill a gap between two sections of roadway that have bike lanes, or to fill a gap between a shared use path and a nearby destination, or other similar connections.
- On a section of roadway where the lanes are too narrow for a bicyclist and motorist to travel side-by-side in the lane.



For more information on facility design, please see the Small Town and Rural Multimodal Network Design Guide (www.ruraldesignguide.com) as well as a list of design resources in Appendix A.

The Small Town and Rural Multimodal Networks guide is a design resource and idea book to help small towns and rural communities support safe, accessible, comfortable, and active travel for people of all ages and abilities.

The guide is intended to:

- Provide a bridge between existing guidance on bicycle and pedestrian design and rural practice.
- Encourage innovation in the development of safe and appealing networks for bicycling and walking in small towns and rural areas.
- Provide examples of peer communities and project implementation that is appropriate for rural communities.

TYPES OF BICYCLISTS

Bicyclists can be categorized into four distinct groups based on comfort level and riding skills. Bicyclists' skill levels greatly influence expected speeds and behavior, both in separated bikeways and on shared roadways. Each of these groups has different bicycle facility needs, so it is important to consider how a bicycle network will accommodate each type of cyclist when creating a non-motorized plan or project. In the US population, people are generally categorized into one of four cyclist types. The characteristics, attitudes, and infrastructure preferences of each type are described below. Based on observations, committee comments, and public input, most of North Stanly County residents fall within the "Interested but Concerned" group, and the plan's recommendations reflect this. For example, in North Stanly, there is strong interest in developing facilities separated from roadways, such as the Falcon Trail and other projects separated from busy roadways such as US 52 (rather than bike lanes or shared-lane markings), thereby accommodating as many user types as possible.

Source: Four Types of Cyclists. (2009). Roger Geller, City of Portland Bureau of Transportation. Supported by data collected nationally since 2005.

Figure 3.2 Types of Bicyclists

HIGHLY EXPERIENCED (~1% OF POPULATION)

Characterized by bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes and will typically choose roadway connections -- even if shared with vehicles -- over separate bicycle facilities such as shared use paths.

ENTHUSED AND CONFIDENT (~ 5-10% OF POPULATION)

This user group encompasses bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or multi-use paths when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreationalists, racers and utilitarian bicyclists.

INTERESTED BUT CONCERNED (~ 60% OF POPULATION)

This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or multi-use trails under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthused & Confident" with encouragement, education and experience.

NO WAY, NO HOW (~ 30% OF POPULATION)

Persons in this category are not bicyclists, and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will not ride a bicycle under any circumstances.

Completing the Falcon Trail from Richfield through New London to North Stanly Highs School is the top priority for North Stanly

THE BICYCLE AND PEDESTRIAN NETWORK

Recommendations are organized into the following phases. The phases should be approached by the North Stanly communities with flexibility, taking into account opportunities that may arise after this planning process is complete.

1 MAP 3.1 TOP PRIORITY PROJECTS (PHASE 1): These projects were the most consistently mentioned in committee meetings and public outreach, and all four ranked high in prioritization (see below) with major destination points. They are featured in cutsheets #1-4.

2 Map 3.2: PHASE 2: These projects were strategically selected to form a cohesive and connected network, serving key links across the North Stanly communities. Each of the four projects scored well in prioritization. They are featured in cutsheets #5-8.

3 Map 3.3: COMPREHENSIVE NETWORK: This map shows all opportunities in the entire study area. These are long term recommendations that may be implemented over time in conjunction with future roadway projects, new development, and/or a myriad of potential public/private/non-profit sector partnerships. While longer term, they are an important vision of this plan, as they show what the potential is for any given future development or roadway construction that may provide an opportunity for incorporating bicycle and pedestrian facilities.

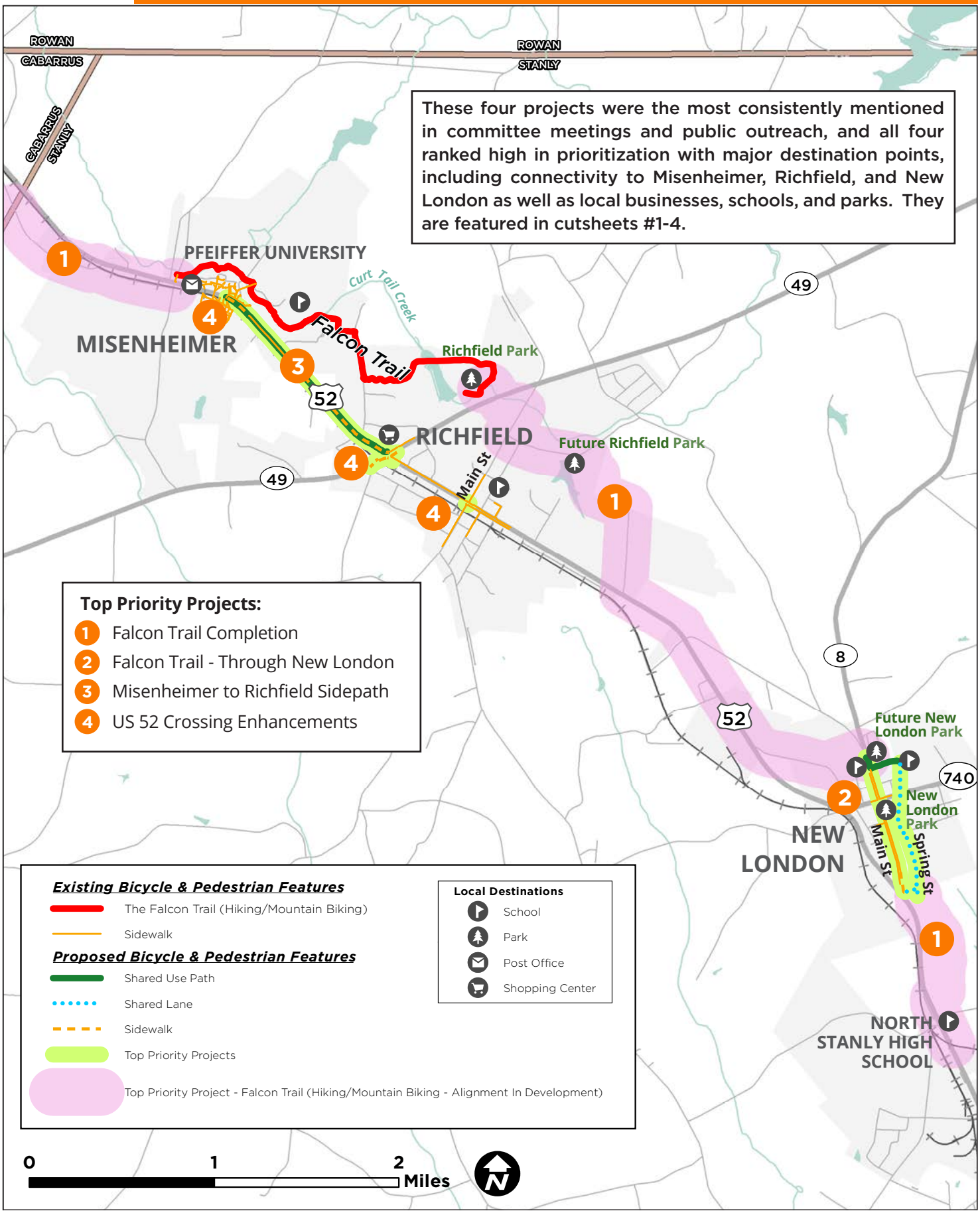
PRIORITIZATION TABLE

This table is meant to serve as a general guide for establishing why these projects are important. When deciding the order in which to build out a community-wide network, it is just as important to be strategic in considering how new projects build upon previous projects as it is to build in order of any given list. It is also important to consider opportunities to build facilities as they arise. For example, some of the most cost-effective opportunities to build facilities are during new development and roadway construction, regardless of priority ranking through this process.

	Name	Facility Types*	Connects to a Park	Connects to a School or Univ.	Connects to an Existing Trail or Bike/Ped Facility	In An Adopted Plan	Connects to a Commercial Center	Reported Bicycle or Pedestrian Crash Along Route	Supportedd in public and Stakeholder Feedback
1	Falcon Trail Completion (Cabarrus County to North Stanly High School)	SUP, SW, SL	✓	✓	✓	✓	✓	✓	✓
2	Falcon Trail - Through New London	SUP, SL, SW	✓	✓	✓	✓	✓		✓
3	Misenheimer to Richfield Sidepath (Pfeiffer University to US 52/NC 49 intersection)	SUP		✓	✓	✓	✓		✓
4	Intersection Improvements (US 52 Crossings)	SW, Crossing Facilities		✓	✓	✓	✓		✓
5	ClearView Apartments Sidepath (Clearview Apartments to Pfeiffer University)	SUP		✓	✓	✓	✓		✓
6	Richfield Park Connector (Sidewalk terminus to Richfield Park)	SUP	✓		✓		✓		✓
7	Falcon Trail to Food Lion Commercial Center Shared Lanes (Culp Road to the US 52/ NC 49 intersection)	SL	✓		✓		✓		✓
8	E. Gold Street Sidepath (Main Street to Highland Drive)	SUP		✓	✓	✓	✓		✓

**Facility Types: Separated Bicycle Lane (SBL); Shared Use Path (SUP); Sidewalk (SW); Shared Lane (SL)*

MAP 3.1 TOP PRIORITY PROJECTS



1 COMPLETE THE FALCON TRAIL

CABARRUS COUNTY LINE TO NEW LONCON AND NORTH STANLY HIGH SCHOOL

The development of the Falcon Trail over the past decade as part of the Carolina Thread Trail in North Stanly County has resulted in 2.7 miles of existing hiking/mountain biking trail connecting Pfeiffer University to Richfield Park, with overwhelming community support to continue the trail northwest to Gold Hill and south to New London. Much of the groundwork for implementing these connections has been led by the Friends of the North Stanly Trails and Parks non-profit group. The specific alignment is currently under development.

LENGTH

» Length: 29,300 ft (5.5 miles)

TYPE

» Project type: Unpaved Hiking/Mountain Biking Trail

JURISDICTION

» Village of Misenheimer
» Town of Richfield
» Town of New London
» Stanly County

SUPPORT IN OTHER PLANS

» Carolina Thread Trail Master Plan for Stanly County Communities (2010)
» Stanly County Comprehensive Transportation Plan (2012)
» Albemarle, Badin, and New London Comprehensive Transportation Plan (2013)
» New London Park Project (Ongoing)

TRIP GENERATORS

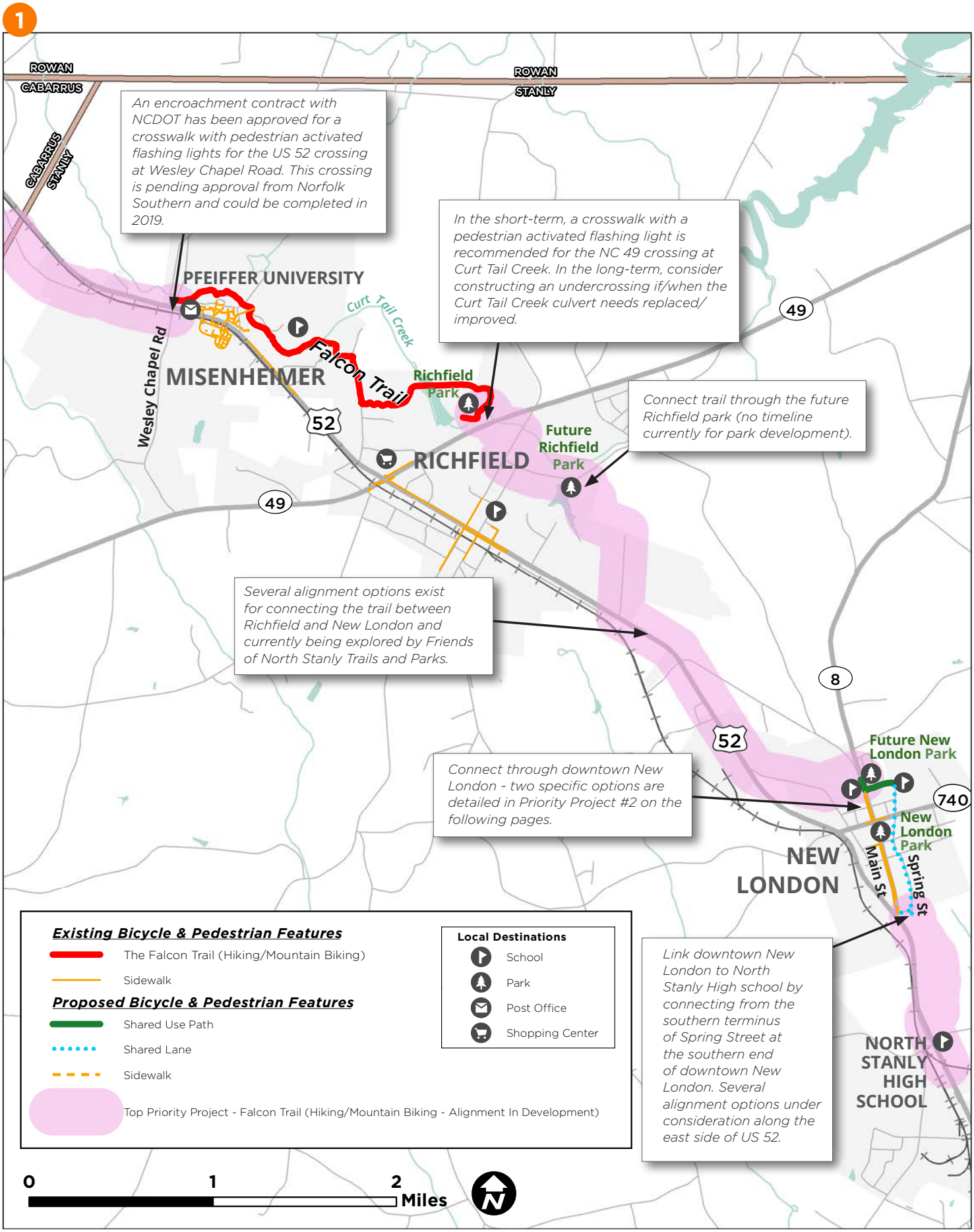
» Residents of Misenhimer, Richfield, and New London
» Pfeiffer University
» The Falcon Trail/Carolina Thread Trail
» Food Lion/Commercial area at the US 52/NC 49 intersection
» Businesses along corridor
» Richfield Park
» Downtown New London Park
» Future New London park
» Future Richfield park
» Tarheel Challenge Academy
» Gray Stone Day School
» Richfield Elementary School
» Christ the King Christian School
» North Stanly High School

POTENTIAL RIGHT-OF-WAY NEEDS

» Currently under negotiation

POTENTIAL PARTNERSHIPS

» Village of Misenheimer
» Town of Richfield
» Town of New London
» NCDOT
» Businesses along corridor
» Schools along corridor
» Residetns along corridor
» Friends of North Stanly Parks and Trails
» Carolina Thread Trail
» Tarheel Challenge Academy
» North Carolina Safe Routes to School Program
» Rocky River Rural Planning Organization


1
ROWAN
CABARRUS
ROWAN
STANLY
CABARRUS
STANLY
An encroachment contract with NCDOT has been approved for a crosswalk with pedestrian activated flashing lights for the US 52 crossing at Wesley Chapel Road. This crossing is pending approval from Norfolk Southern and could be completed in 2019.
In the short-term, a crosswalk with a pedestrian activated flashing light is recommended for the NC 49 crossing at Curt Tail Creek. In the long-term, consider constructing an undercrossing if/when the Curt Tail Creek culvert needs replaced/ improved.
PFEIFFER UNIVERSITY
Curt Tail Creek
Wesley Chapel Rd
MISENHEIMER
Falcon Trail
Richfield Park
49
52
RICHFIELD
Future Richfield Park
Connect trail through the future Richfield park (no timeline currently for park development).
49
Several alignment options exist for connecting the trail between Richfield and New London and currently being explored by Friends of North Stanly Trails and Parks.
8
52
Future New London Park
740
New London Park
NEW LONDON
Main St
Spring St
Connect through downtown New London - two specific options are detailed in Priority Project #2 on the following pages.
Existing Bicycle & Pedestrian Features
The Falcon Trail (Hiking/Mountain Biking)
Sidewalk
Proposed Bicycle & Pedestrian Features
Shared Use Path
Shared Lane
Sidewalk
Top Priority Project - Falcon Trail (Hiking/Mountain Biking - Alignment In Development)
Local Destinations
School
Park
Post Office
Shopping Center
Link downtown New London to North Stanly High school by connecting from the southern terminus of Spring Street at the southern end of downtown New London. Several alignment options under consideration along the east side of US 52.
NORTH STANLY HIGH SCHOOL
0
1
2
Miles
N

2 PRIORITY PROJECT #2: FALCON TRAIL - NEW LONDON

FROM THE TARHELL CHALLENGE ACADEMY/FUTURE NEW LONDON PARK TO THE SOUTHERN TERMINUS OF SPRING STREET

The next logical connection for the Falcon Trail continuing south is to link Richfield through downtown New London to North Stanly High School. This connection was one of the most often mentioned during public outreach as part of this planning process. Much of the alignment has currently been identified which includes a strong desire to bring the trail through downtown New London.

Given the parking needs on both sides of Main Street along with steady truck traffic, this project sheet describes completing the pedestrian connection along Main Street from the future New London park south to Eudy Street and Spring Street as well as a proposed connection for bicyclists through the future New London park to Ferry Road, Depot Street, and Spring Street.

LENGTH

» Length: 6,250 ft (1.2 miles)

TYPE

» Project type: Shared Use Path, Shared Lane, Sidewalk

JURISDICTION

» Town of New London

TRIP GENERATORS

» Downtown New London
» The Falcon Trail/Carolina Thread Trail
» Future New London park
» Downtown New London Park
» Tarheel Challenge Academy
» Christ the King Christian School
» North Stanly High School
» Richfield
» Misenheimer
» Pfeiffer University

SUPPORT IN OTHER PLANS

» Carolina Thread Trail Master Plan for Stanly County Communities (2010)
» Albemarle, Badin, and New London Comprehensive Transportation Plan (2013)
» Future New London Park Project (Ongoing)

POTENTIAL RIGHT-OF-WAY NEEDS

» Connection from future New London park to North Ferry Road at Christ the King Christian School

POTENTIAL PARTNERSHIPS

» Town of New London
» NCDOT
» Downtown New London businesses
» Friends of North Stanly Parks and Trails
» Carolina Thread Trail
» Tarheel Challenge Academy
» Christ the King Christian Academy
» North Carolina Safe Routes to School Program
» Rocky River Rural Planning Organization

COST ESTIMATE

» $370,000*

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.

Existing conditions on N. Ferry Road looking south toward Gold Street.

Proposed conceptual improvements include shared lane markings (sharrows) along a series of neighborhood streets (Ferry Road, Depot Street, and Spring Street) combined with trail connectivity through the future New London Park to the north and Spring Street to the south (for connectivity toward North Stanly High School).

2 Opportunities & Constraints for Priority Project #2

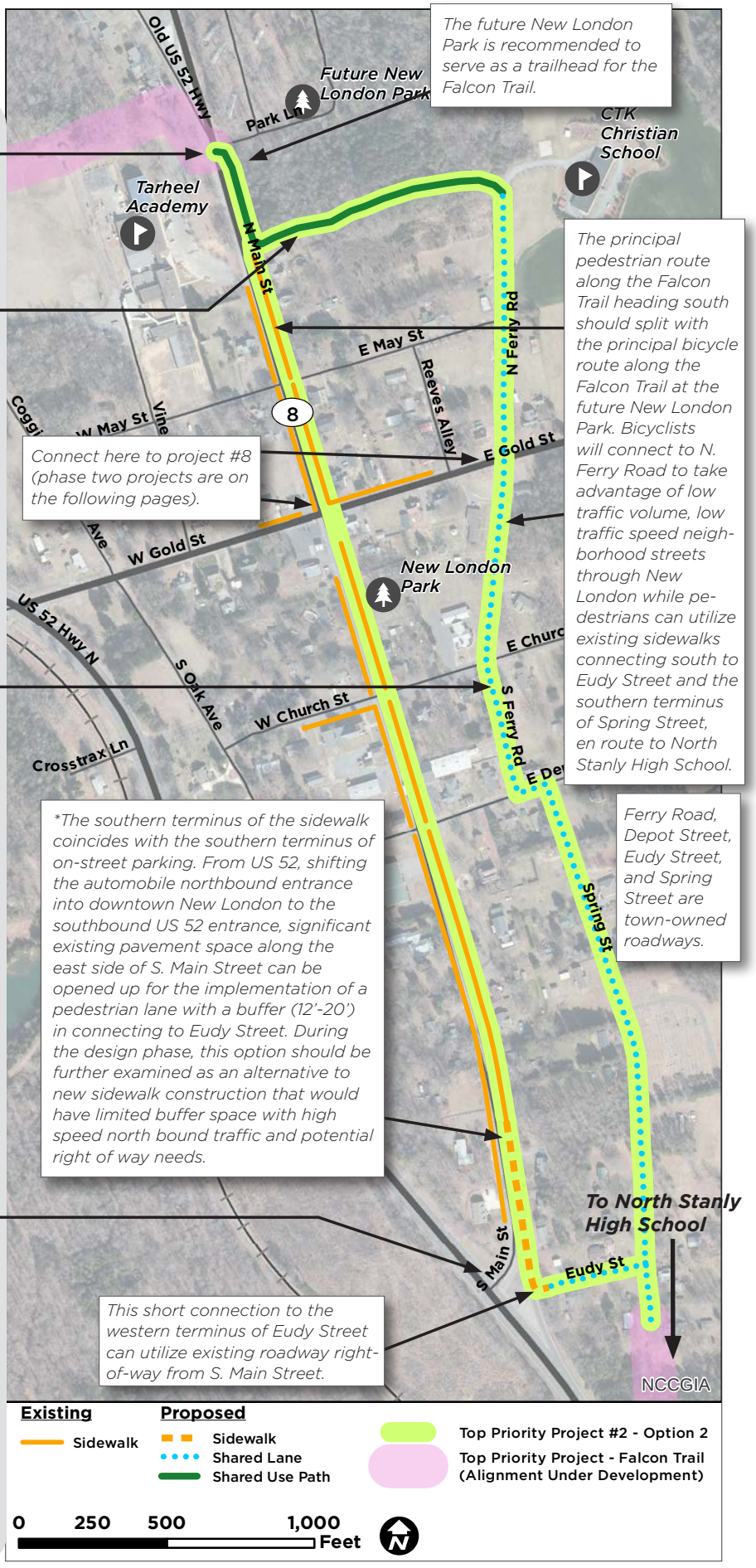
A crossing is recommended at this location to connect the Tarheel Challenge Academy to the future New London Park as part of the N. Main Street crossing for the Falcon Trail.

Construct a short segment of the Falcon Trail through the southern section of the future park boundary to the Christ the King Christian School property, connecting to the northern end of Ferry Road. The design/engineering of the future park is currently underway, and the specific route should be developed with the ongoing park design/engineering process.

Ferry Road, a short segment of Depot Street, and Spring Street are low traffic volume, low speed neighborhood streets with varying pavement widths (15' - 34'). Both North Ferry Road and Spring Street have speed humps that encourage slower automobile travel speeds. Implement shared lane markings for bicyclists as part of the Falcon Trail bicycle route through New London.

*To enhance the pedestrian environment through the downtown New London sidewalk network as well as complete the link at the southern end of this project from the southern terminus of the existing sidewalk to Eudy Street, consider removing the north bound continuous express right turn lane from US 52 onto South Main Street. North bound automobile traffic heading into downtown New London from US 52 would enter at the same location where south bound traffic on South Main Street exits to US 52. Remove part of the southwest portion of the concrete island at the US 52 intersection to allow for proper turning movements for truck traffic. This improvement will encourage speeding traffic to slow down upon entering S. Main Street toward downtown New London. **Lower the speed limit for the length of Main Street to 25 mph**.

It is recommended that this segment be designated as part of the Falcon Trail/Carolina Thread Trail system.



3 MISENHEIMER/PFEIFFER UNIVERSITY TO RICHFIELD SIDEPATH OR SIDEWALK

FROM PFEIFFER UNIVERSITY CAMPUS TO THE US 52/NC 49 INTERSECTION IN RICHFIELD

This connection would provide a direct walking (and potentially bicycling) link from Misenheimer/Pfeffier University campus to the US 52/NC 49 commercial center in Richfield, and would nearly create a loop with the existing Falcon Trail that runs approximately parallel to this corridor (see projects #'s 3, 4, and 8 below to enhance Falcon Trail connectivity at the US 52/NC 49 intersection in Richfield). This connection was also one of the most often mentioned during public outreach as part of this planning process.

LENGTH

» Length: 6,250 ft (1.2 miles)

TYPE

» Project type: 8'-12' Sidepath (multi-use) or 5' sidewalk

JURISDICTION

» Village of Misenheimer

» Town of Richfield

» Stanly County

TRIP GENERATORS

» Misenheimer

» Richfield

» Pfeiffer University

» The Falcon Trail/Carolina Thread Trail

» Food Lion/Commercial area at the US 52/NC 49 intersection

» Gray Stone Day School

SUPPORT IN OTHER PLANS

» Stanly County Comprehensive Transportation Plan (2012)

POTENTIAL RIGHT-OF-WAY NEEDS

» ROW acquisition needed for the length of the project

POTENTIAL PARTNERSHIPS

» Village of Misenheimer

» Town of Richfield

» NCDOT

» Food Lion/Commercial area businesses at the US 52/NC 49 intersection

» Friends of North Stanly Parks and Trails

» Carolina Thread Trail

» North Carolina Safe Routes to School Program

» Rocky River Rural Planning Organization

COST ESTIMATE

» $950,000* (Sidepath option)

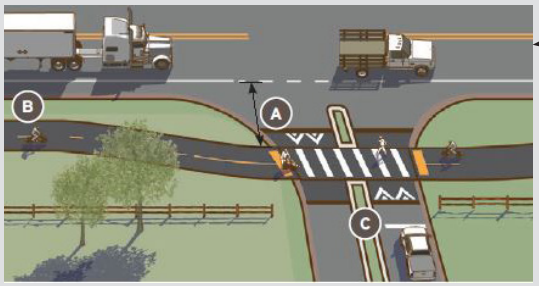
» $370,000* (Sidewalk option)

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.

Existing conditions facing north/Pfeiffer University from the northern terminus of the existing sidewalk between Misenheimer and Richfield.

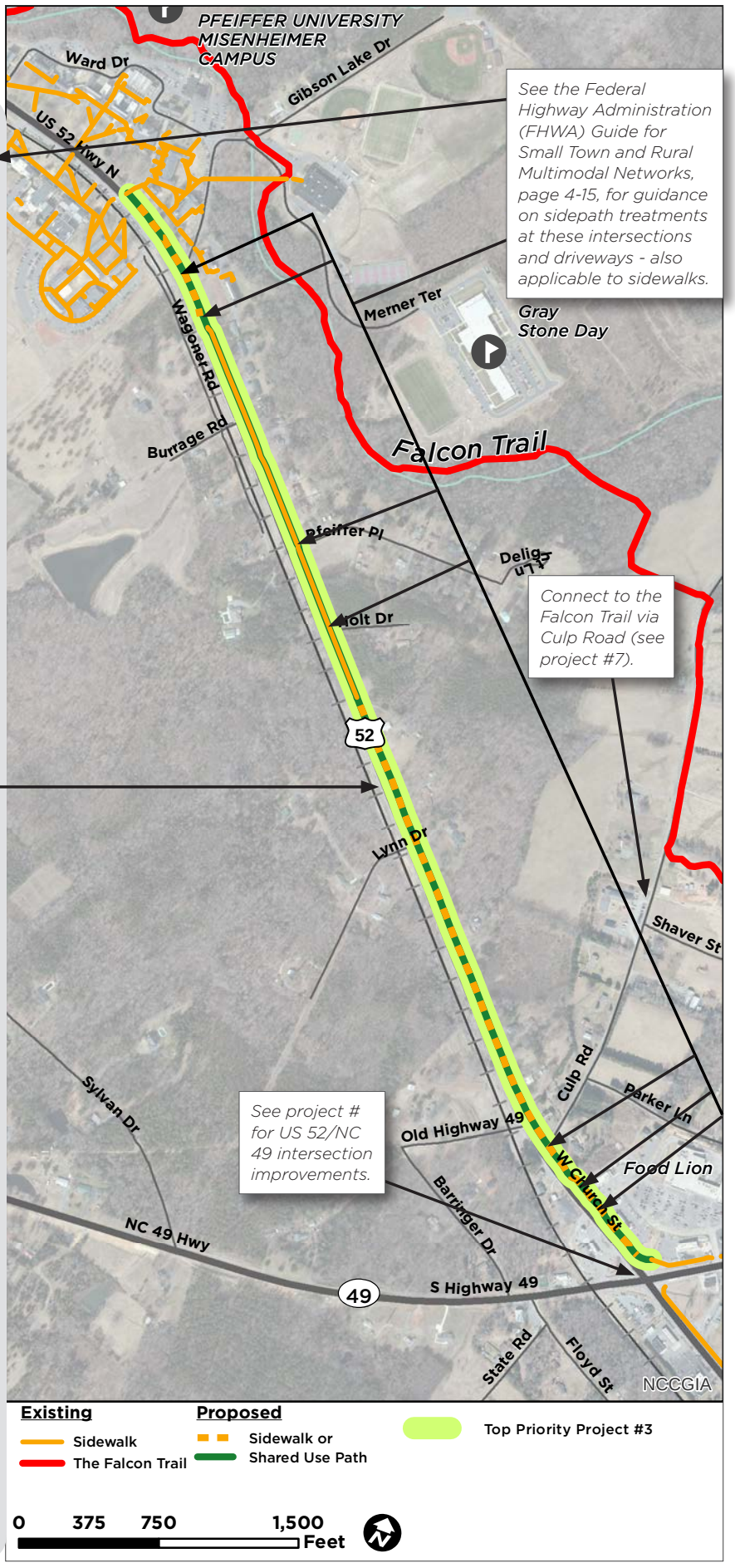
Proposed conceptual improvements showing sidewalk completion connecting to the Pfeiffer University sidewalk network.

3 Opportunities & Constraints for Priority Project #3



US 52 from Misenheimer/Pfeiffer University to NC 49 in Richfield is a two-lane road with 27' pavement width, traffic volumes of 9,000 AADT, and a 35 mph speed limit. Ideal bicycle and pedestrian facilities for all ages and abilities would have physical separation from automobile traffic.

An 8'-12' multiuse sidepath or 5' sidewalk is recommended along the northeast side of US 52 from the southernmost crosswalk of US 52 at Pfeiffer University to the northeast corner of the US 52/NC 49 intersection in Richfield. An existing 5' -wide sidewalk segment currently exists along this corridor from the southeastern edge of Pfeiffer University campus to 375' south of Holt Dr. If an 8'-12' sidepath were to be constructed, this would require the removal of the existing sidewalk segment before constructing the 8'-12' facility. Constructing a 5' sidewalk would connect to the existing sidewalk segment and would save on costs by utilizing the existing segment (and would be a narrower facility).



4 INTERSECTION IMPROVEMENTS - US 52 CROSSING ENHANCEMENTS: US 52/NC 49

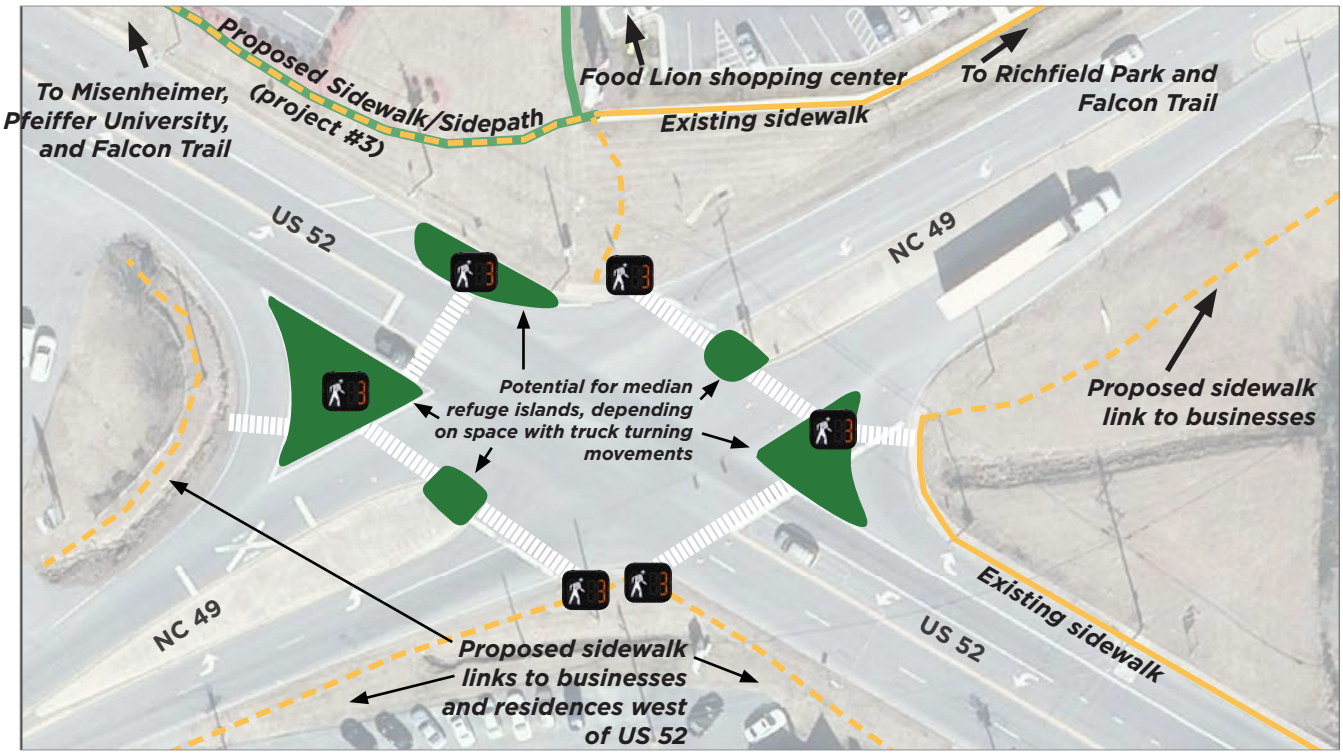
This project provides crossing opportunities to the US 52/NC 49 intersection that includes the highest concentration of businesses in North Stanly County, including the communities' main grocery store (Food Lion). Most residents of Misenheimer and Richfield and students, staff, and faculty live within walking distance of this intersection. **This location was the most often mentioned intersection needing improvement in the public comment form feedback.**

Reasoning behind the proposed crossing improvements: Multiple businesses and residences are found on all four corners of this intersection. Combined with project # 2 this intersection will directly link Richfield to Misenheimer and Pfeiffer University.

COST ESTIMATE

» $390,000* (Includes sidewalk segments pictured below)

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.



This is not a design plan; precise locations and elements should be designed in accordance with engineering standards. All facility recommendations along NCDOT-maintained roadways will require review and approval by NCDOT Highway Division 10 prior to implementation. Background Image from NC OneMap.

4 INTERSECTION IMPROVEMENTS - US 52 CROSSING ENHANCEMENTS: US 52/MAIN STREET IN RICHFIELD

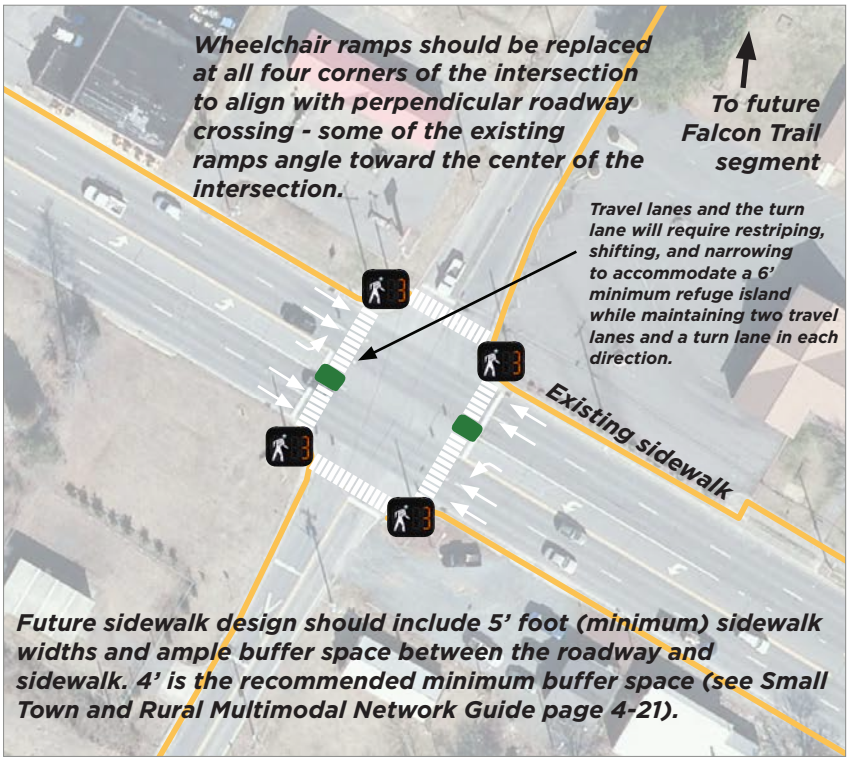
This project provides crosswalks, median refuge islands, updated curb ramps, and pedestrian signals for the signalized intersection at Main Street in Richfield. **Combined with Priority Intersection Project A, this intersection project would be one of two crossing opportunities of US 52 in Richfield.**

Reasoning behind the proposed crossing improvement: the Main Street/US 52 intersection connects all four existing sidewalk segments leading to this intersection. These crossing opportunities would connect multiple businesses and residences near all four corners of this intersection.

COST ESTIMATE

» $140,000*

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.



Above & below: These are not a design plans; precise locations and elements should be designed in accordance with engineering standards. All facility recommendations along NCDOT-maintained roadways will require review and approval by NCDOT Highway Division 10 prior to implementation. Background Image from NC OneMap.

PRIORITY PROJECT 4 - US 52 CROSSING ENHANCEMENTS: US 52 AT PFEIFFER UNIVERSITY CAMPUS

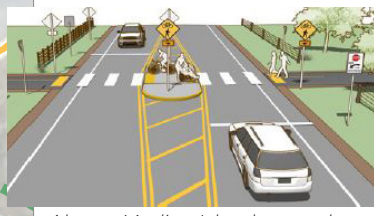
This project provides small, but significant improvements to the two existing pedestrian hybrid beacon crossings of US 52 at Pfeiffer University campus. **These are frequently used crossings, linking the two sides of Pfeiffer University campus across US 52.**

Reasoning behind the proposed median island installations: US 52 crosses through the middle of Pfeiffer University campus. High levels of pedestrian activity occur daily at these crossings. The FHWA's 'Desktop Reference for Crash Reduction Factors' has shown that **median islands can reduce pedestrian crashes by 56%**.

COST ESTIMATE

» $22,000*

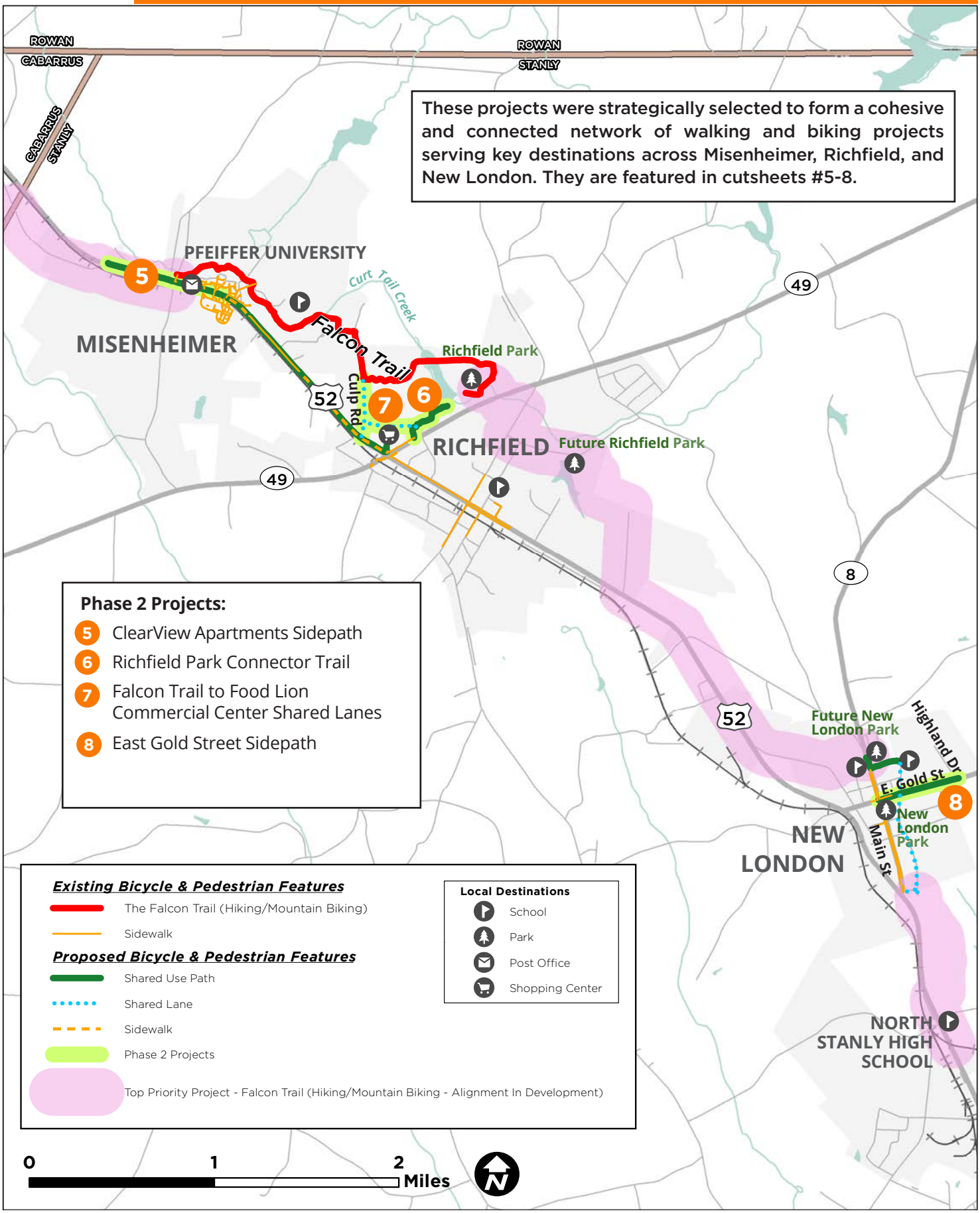
*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.



Above: Median Island example from page 4-8 of the Small Town and Rural Multimodal Network Guide.

Connecting Richfield Park directly to the US 52/NC 49 commercial area is an important part of phase two considerations for increasing connectivity and building upon the top priority projects.

MAP 3.2 PHASE 2 PROJECTS



5 CLEARVIEW APARTMENTS SIDEPATH

FROM THE CLEARVIEW APARTMENTS TO PFEIFFER UNIVERSITY

This connection would provide a direct walking/biking link from the western edge of Pfeiffer University campus to the ClearView Apartments, providing a 0.67 mile walking/biking link for the residents who otherwise make this commute by car or by walking on the US 52 shoulder on a daily basis. Combined with project #3, this would provide a continues link all the way to the Food Lion shopping center in Richfield (US 52/NC 49 intersection).

LENGTH

» Length: 3,500 ft (0.67 miles)

TYPE

» Project type: 8'-12' Sidepath (multi-use)

TRIP GENERATORS

» Misenheimer

» Richfield

» Pfeiffer University

» The Falcon Trail/Carolina Thread Trail

» Food Lion/Commercial area at the US 52/NC 49 intersection

JURISDICTION

» Village of Misenheimer

» Stanly County

SUPPORT IN OTHER PLANS

» Stanly County Comprehensive Transportation Plan (2012)

POTENTIAL RIGHT-OF-WAY NEEDS

» ROW acquisition needed for the length of the project

POTENTIAL PARTNERSHIPS

» Village of Misenheimer

» Stanly County

» NCDOT

» ClearView Apartments

» Pfeiffer University

» US Postal Service

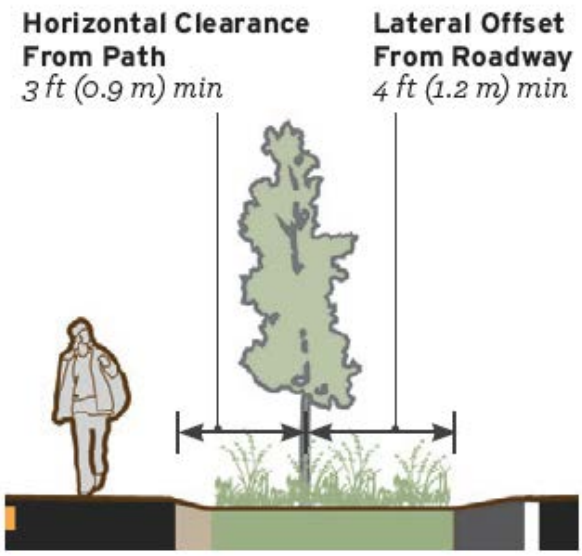
» Friends of North Stanly Parks and Trails

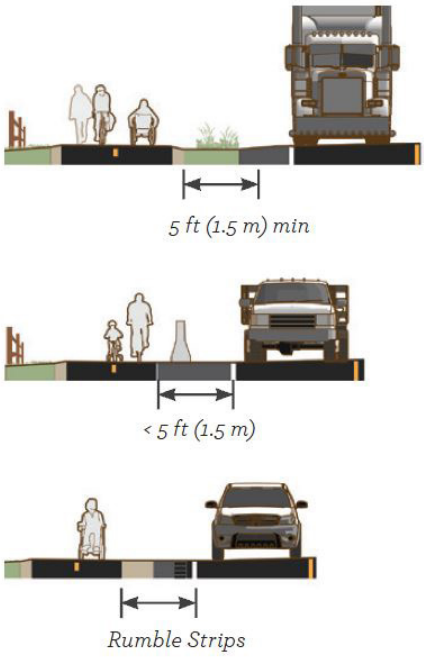
» Rocky River Rural Planning Organization

COST ESTIMATE

» $370,000*

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.





For more information on sidepath design, please see the Small Town and Rural Multimodal Network Design Guide pages 4-11 — 4-18 (www.ruraldesignguide.com).

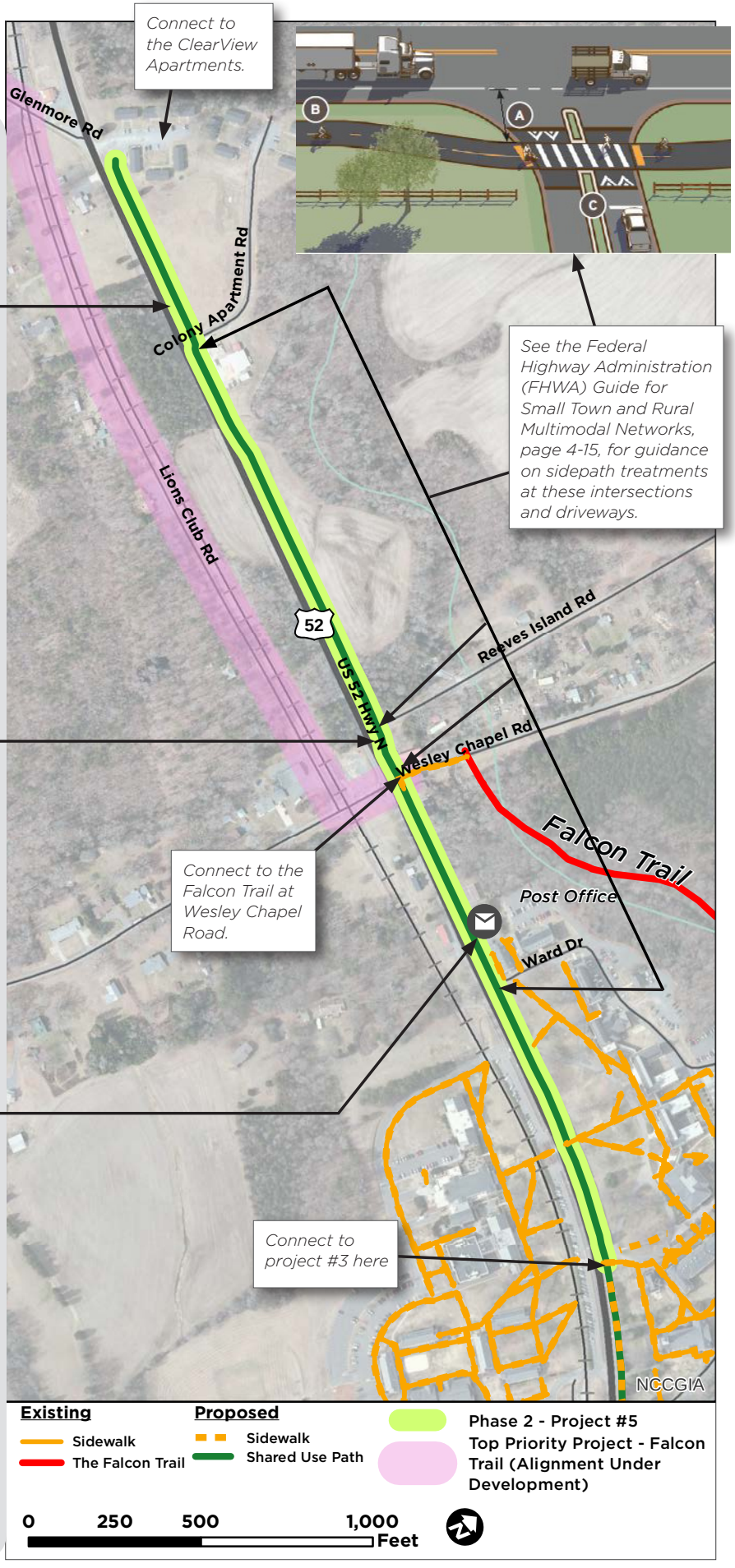
5 Opportunities & Constraints for Project #5

This project should be constructed along the north side of the open drainage to allow for proper buffer space from US 52 traffic and avoid costs associated with drainage work.

US 52 from Glenmore Road to Pfeiffer University is a two-lane road with 27' pavement width, traffic volumes of 7,300 AADT, and a 55 mph speed limit. This cross section transitions to three lanes, 34' pavement width, traffic volumes of 9,500 AADT, and a 35 mph speed limit through Pfeiffer University. Ideal bicycle and pedestrian facilities for all ages and abilities would have physical separation from automobile traffic.

An 8'-12' multiuse sidepath is recommended along the north side of US 52 from the ClearView Apartments to the southernmost crosswalk of US 52 at Pfeiffer University.

At the US Post Office property, consider constructing the shared use path through the back side of the property to avoid the parking lot. If connecting through the front of the property, driveway consolidation is recommended. Further study needed along this section.



6 RICHFIELD PARK CONNECTOR

FROM THE SIDEWALK TERMINUS AT DOLLAR GENERAL TO RICHFIELD PARK

This connection would provide a direct walking/biking link from the US 52/NC 49 commercial center in Richfield to Richfield Park. Currently, the NC 49 corridor between the commercial center and Richfield Park contains a sidewalk segment that ends at the Dollar General. A short 0.3 mile trail link would complete this connection.

LENGTH

» Length: 1,600 ft (0.3 miles)

TYPE

» Project type: 8'-12' Shared Use Path (used for cost estimate - unpaved shared use path should be

JURISDICTION

» Town of Richfield

TRIP GENERATORS

» Richfield

» Richfield Park

» The Falcon Trail/Carolina Thread Trail

» Food Lion/Commercial area at the US 52/NC 49 intersection

SUPPORT IN OTHER PLANS

» None

POTENTIAL RIGHT-OF-WAY NEEDS

» ROW acquisition needed for the length of the project

POTENTIAL PARTNERSHIPS

» Village of Misenheimer

» Town of Richfield

» Food Lion/Commercial area businesses at the US 52/NC 49 intersection

» Friends of North Stanly Parks and Trails

» Carolina Thread Trail

» Rocky River Rural Planning Organization

COST ESTIMATE

» $250,000*

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.

This project would provide a direct link from the Richfield Park entrance (pictured above) to the Food Lion/Commercial area at the US 52/NC 49 intersection.

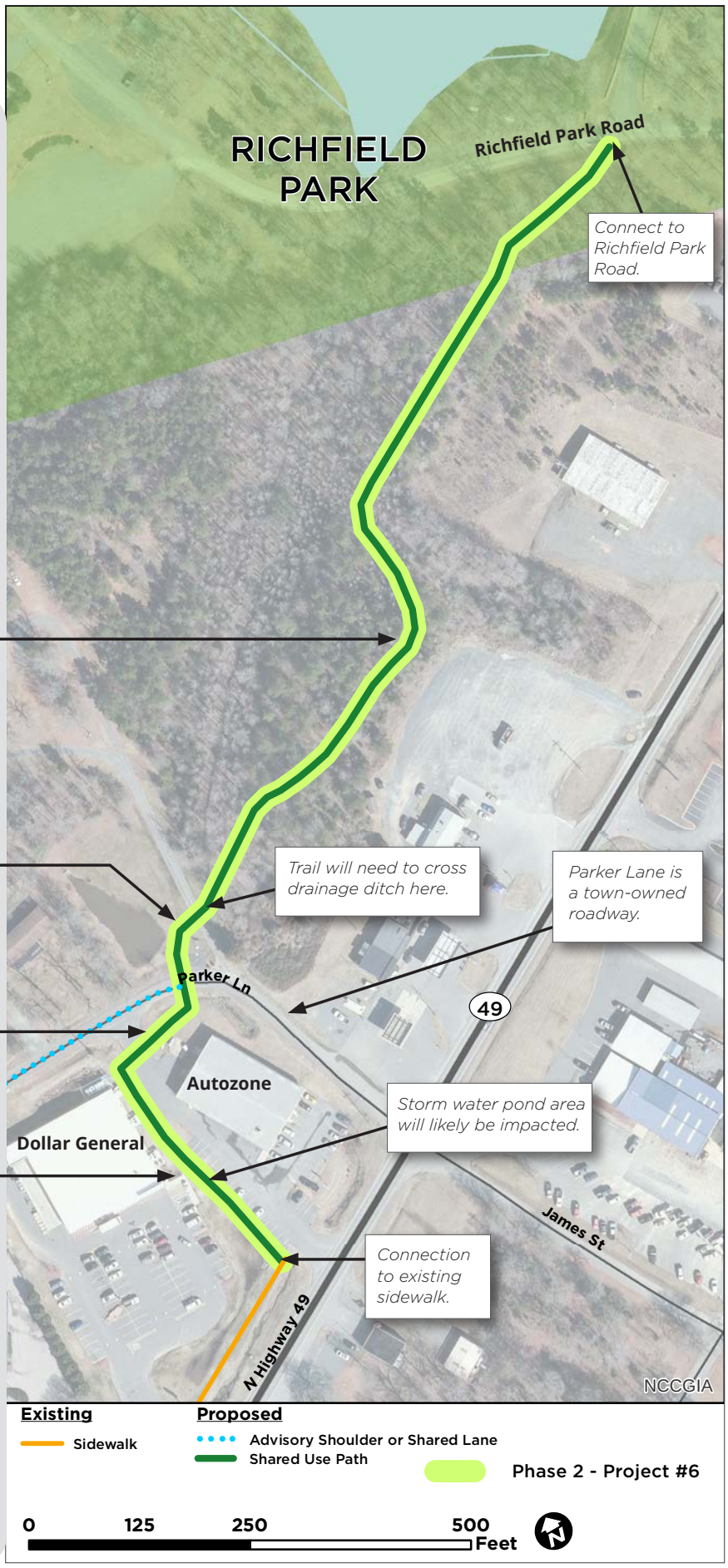
6 Opportunities & Constraints for Project #6

Construct shared use path through the wooded area behind several NC 49 businesses to complete the link to Richfield Park.

Construct shared use path along the west and north side of the utility boxes on the north side of the Parker Lane curve, crossing the residential driveway and turning to the northeast toward Richfield Park.

Construct shared use path across the Parker Lane driveway to the northern corner of the Autozone property at Parker Lane.

Construct shared use path in the green space along the east side of the Dollar General property from the eastern terminus of the existing sidewalk to the Parker Lane/Autozone driveway.



7 FALCON TRAIL TO FOOD LION COMMERCIAL CENTER SHARED LANES

FROM CULP ROAD TO THE US 52/NC 49 INTERSECTION IN RICHFIELD

This project would enhance this connection for bicyclists and pedestrians from the Falcon Trail (and backway to Richfield Park) to the Food Lion Commercial Center at the US 52/NC 49 intersection.

LENGTH

» Length: 3,200 ft (0.6 miles)

TYPE

» Project type: Shared Lane Markings (advisory shoulders are an option as well, upon request to experiment through NCDOT and the FHWA - see map with description on following page and page 36 for further detail).

JURISDICTION

» Town of Richfield

TRIP GENERATORS

» Misenheimer

» Richfield

» Pfeiffer University

» The Falcon Trail/Carolina Thread Trail

» Food Lion/Commercial area at the US 52/NC 49 intersection

» Richfield Park

SUPPORT IN OTHER PLANS

» None

POTENTIAL RIGHT-OF-WAY NEEDS

» None

POTENTIAL PARTNERSHIPS

» Town of Richfield

» NCDOT

» Food Lion/Commercial area businesses at the US 52/NC 49 intersection

» Friends of North Stanly Parks and Trails

» Carolina Thread Trail

» Rocky River Rural Planning Organization

COST ESTIMATE

» Shared Lane Markings - $16,000

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.

Shared Lane Markings and lowering the speed limit to 20 mph on Culp Road and Parker Lane can provide a more comfortable environment for bicyclists (as well as pedestrians) traveling between the Food Lion shopping center and the Falcon Trail (and priority project #'s 3 and 5). While advisory shoulders are considered experimental at this time, this option should be considered as well during the design phase. The Falcon Trail crossing of Culp Road pictured above.

7 Opportunities & Constraints for Project #7

Both Culp Road and Parker Lane have 18' of pavement width and carry relatively low traffic volumes (under 600 AADT for Culp Road), and a speed limit of 35 mph currently. Implement shared lane markings along Culp Road from the Falcon Trail to the proposed US 52 sidepath at the US 52/Culp Road intersection. For Parker Lane, implement shared lane markings from Culp Road to the proposed project #5 behind the Autozone property. See the Small Town and Rural Multimodal Network Design Guide for examples of these elements and options - http://ruraldesignguide.com/mixed-traffic.

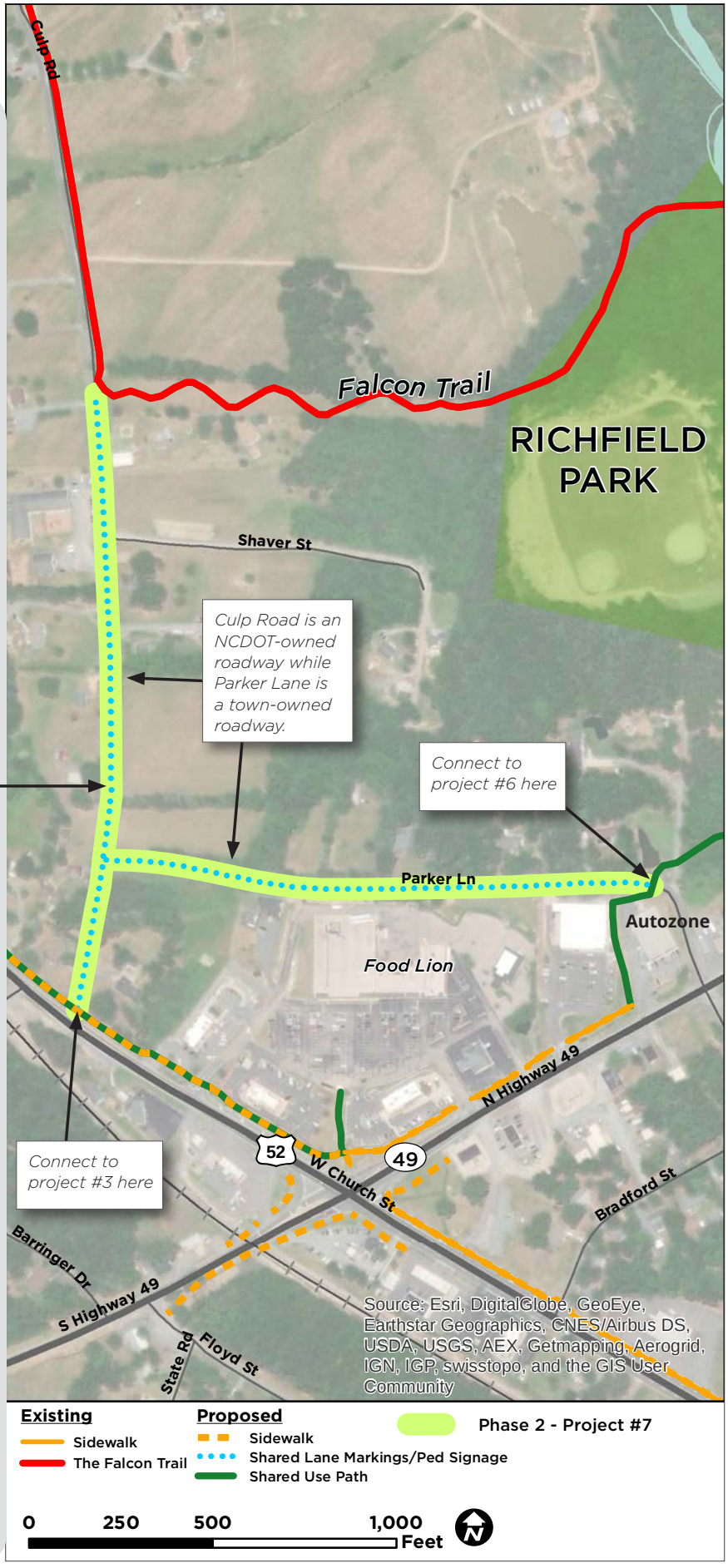
An alternative to shared lane markings and pedestrian signage (W11-2) can include advisory shoulders (sharrows) coupled with pedestrian signage (W11-2).

An advisory shoulder configuration is considered experimental and would require a request to experiment for NCDOT owned roadway sections (Culp Rd). This configuration would include an approximately 9' foot center lane with 4.5' advisory shoulders on both sides of the road.[1]

Lower the speed limit for both Culp Road and Parker Lane to 20 mph.

1. See the Small Town and Rural Multimodal Network Design Guide - http://ruraldesignguide.com/mixed-traffic/advisory-shoulder

For further information and research on advisory shoulders, see - https://altaplanning.com/wp-content/uploads/Advisory-Bike-Lanes-In-North-America_Alta-Planning-Design-White-Paper.pdf .



8 E. GOLD STREET SIDEPATH

From Main Street to Highland Drive in New London

This project would provide a direct link to several neighborhood streets as well as the Highland Baptist Church heading east from downtown New London. By utilizing the existing pavement width, cost savings can be realized versus new construction outside the existing pavement.

LENGTH

» Length: 2,375 ft (0.45 miles)

TYPE

» Project type: Sidepath (multi-use)

JURISDICTION

» Town of New London

TRIP GENERATORS

» Downtown New London

» The Falcon Trail/Carolina Thread Trail

» Christ the King Christian School

» Highland Baptist Church

SUPPORT IN OTHER PLANS

» Central Park Regional Bicycle Plan (2014)

» Albemarle, Badin, and New London Comprehensive Transportation Plan (2012)

POTENTIAL RIGHT-OF-WAY NEEDS

» None

POTENTIAL PARTNERSHIPS

» Town of New London

» NCDOT

» Downtown New London businesses

» Friends of North Stanly Parks and Trails

» Carolina Thread Trails

» Christ the King Christian Academy

» North Carolina Safe Routes to School Program

» Rocky River Rural Planning Organization

COST ESTIMATE

» $110,000*

*Estimate is not based on an engineering design, and is for planning purposes only. Cost is based on 2017/2018 Unit Prices, inflation not included. See Appendix C for further information on cost estimates.

*E. Gold Street (pictured above) is very wide, allowing the possibility for a sidepath to be constructed within the existing pavement width (recommended along the north side (left in photo). For more information on sidepath design options, please see the Small Town and Rural Multimodal Network Design Guide pages 4-11 — 4-18 (www.ruraldesignguide.com). *The cost estimate above incorporates a painted buffer space with plastic flexible bollards.*

8 Opportunities & Constraints for Project #8

E. Gold Street from Main Street to Highland Drive in New London is a two-lane road with 38' pavement width, traffic volumes of 3,000 AADT, and a 35 mph speed limit. Ideal bicycle and pedestrian facilities for all ages and abilities would have physical separation from automobile traffic.

Within the 38' existing pavement width, construct a sidepath along the north side of E. Gold Street. By narrowing the two travel lanes to 11-12' each, provide 10' of multi-use operating space for bicyclists and pedestrians along with a 4-5' physical buffer.

Lower the speed limit for Gold Street to 20 mph.

REGIONAL TRAILS AS AN ECONOMIC DEVELOPMENT OPPORTUNITY FOR NORTH STANLY

Misenheimer, Richfield, and New London are uniquely positioned as part of not one but two but two regional trails: The Carolina Thread Trail and The Central Park Bike Route System. There are several existing features (the Faolcon Trail, signed Central Park Bike Routes) from which to build, but regional connectivity will only come with connected/continuous, dedicated bicycle and pedestrian facilities. Completing the Carolina Thread Trail connection from North Stanly to Old Whitney, Badin, and Morrow Mountain State Park (with connectivity to Albemarle) as well as north to Gold Hill is critical for the positive economic impact often associated with popular trails. This type of impact can come in the form of increased property values and revenue from increased tourism (in addition to savings associated with health benefits of active living). A research group (Headwaters Economics) compiled 120 studies on the impacts of trails in a single library, searchable by type of benefit, use, year, and region. For more on this topic, please refer to this research available at: https://headwaterseconomics.org/economic-development/trails-pathways/trails-research/.

The Carolina Thread Trail

From the Carolina Thread Trail website (www.carolinathreadtrail.org/):

> *"The Carolina Thread Trail is a developing regional network of greenways, trails and blueways that reaches 15 counties, 2 states and 2.3 million people. There are over 260 miles of trails and 170 miles of blueway open to the public – linking people, places, cities, towns and attractions. The Thread Trail preserves our natural areas and is a place for exploration of nature, culture, science and history. This is a landmark project that provides public and community benefits for everyone, in every community.*
>
> *While not every local trail will be part of the Carolina Thread Trail system, the Thread Trail is linking regionally significant trails and many regional attractions. Think of it as a "green interstate system" of major trails and conservation lands created through local efforts throughout the region. The Thread Trail will emerge over time as communities work together to plan and build trails reflecting community character, aspirations and priorities."*

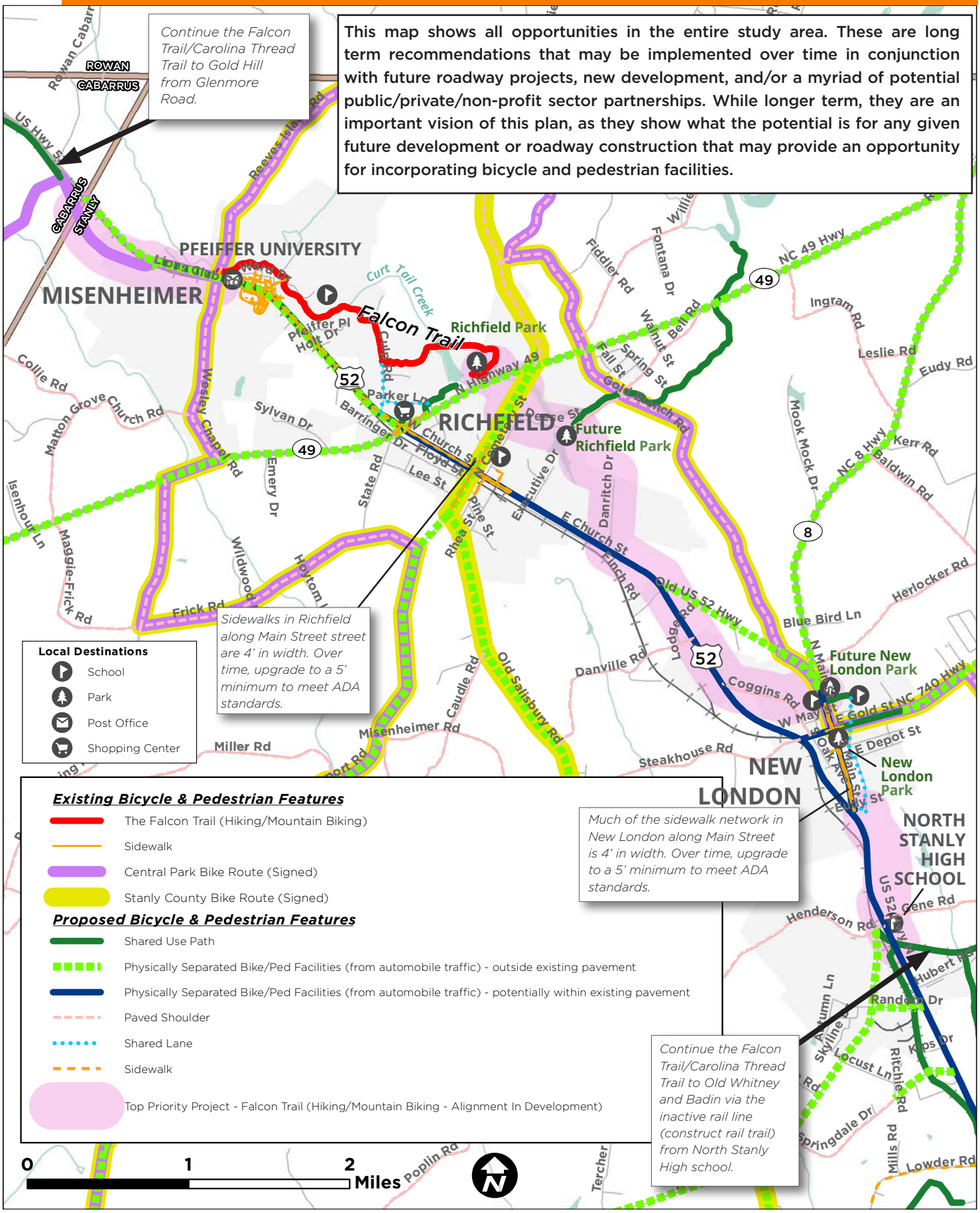
The Carolina Thread Trail website also contains information on trail benefits including health, economic, environmental, and community benefits. See the 'Trail Benefits' section here - hwww.carolinathreadtrail.org/trail-benefits/.

The Central Park Bike Route System

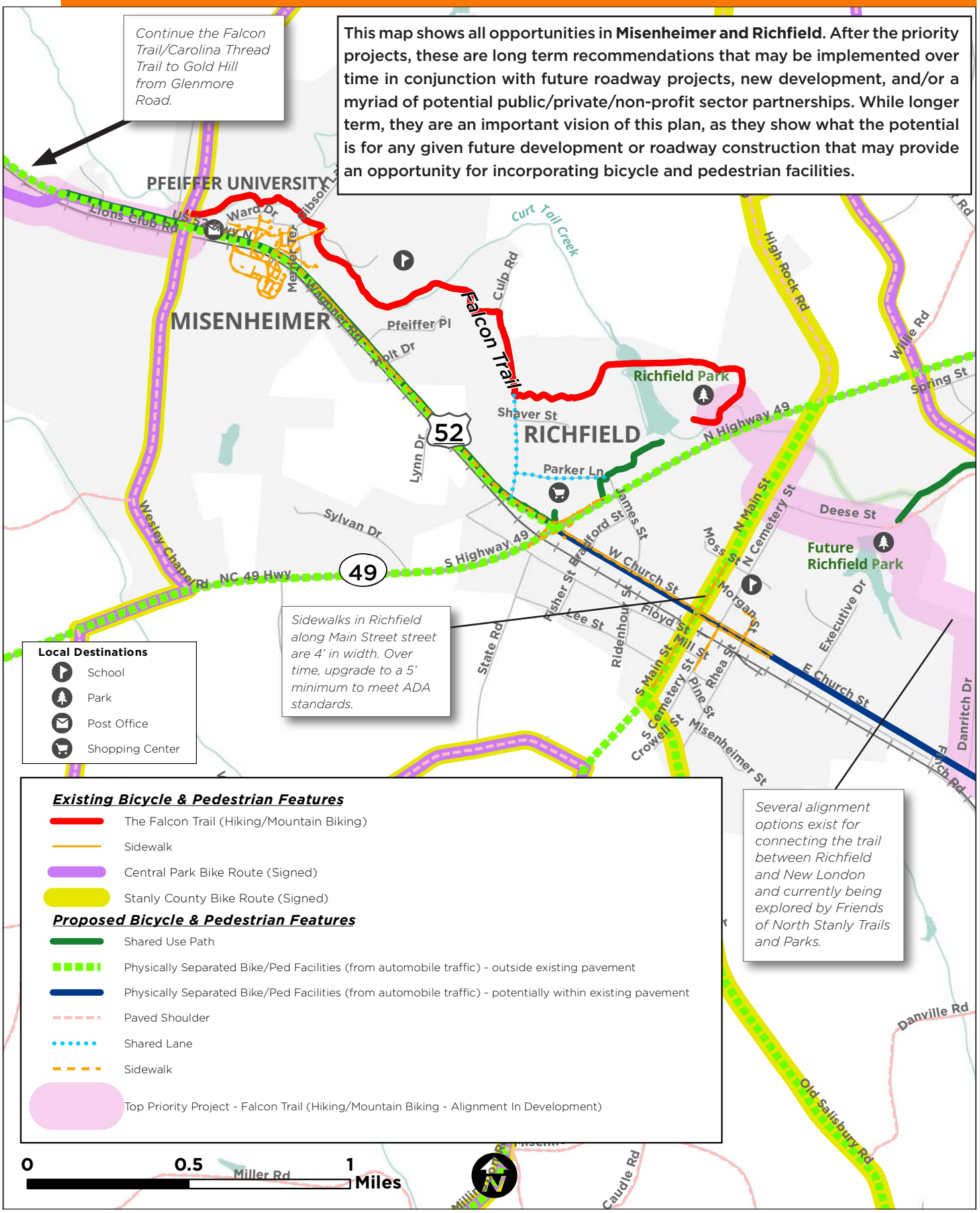
From the Piedmont Triad Regional Council website (www.ptrc.org/index.aspx?page=221):

> *"Under contract to the Bicycle and Pedestrian Division of NCDOT, the Regional Council has developed a regional bicycle plan for the Central Park NC region. The Central Park region of North Carolina is comprised of eight counties in the south central Piedmont: Anson, Davidson, Montgomery, Moore, Randolph, Richmond, Rowan, and Stanly. While predominantly rural in character with small to mid-sized cities, the region is easily accessible from major metropolitan areas of the State. Cyclists traveling in the Central Park NC region enjoy rolling hills, unspoiled scenery and lightly traveled rural roadways. The network of routes and connectors identified in this plan provide a variety of scalable bicycle touring experiences, from day trips to multi-day tours along routes that connect to communities, historic sites, recreational areas, State parks and the North Carolina Zoo."*

OVERVIEW
MAP 3.3 COMPREHENSIVE NETWORK



MISENHEIMER/RICHFIELD
MAP 3.4 COMPREHENSIVE NETWORK



NEW LONDON
MAP 3.5 COMPREHENSIVE NETWORK

This map shows all opportunities in **New London toward Richfield**. These are long term recommendations that may be implemented over time in conjunction with future roadway projects, new development, and/or a myriad of potential public/private/non-profit sector partnerships. While longer term, they are an important vision of this plan, as they show what the potential is for any given future development or roadway construction that may provide an opportunity for incorporating bicycle and pedestrian facilities.

Sidewalks in Richfield along Main Street street are 4' in width. Over time, upgrade to a 5' minimum to meet ADA standards.

Several alignment options exist for connecting the trail between Richfield and New London and currently being explored by Friends of North Stanly Trails and Parks.

Much of the sidewalk network in New London along Main Street is 4' in width. Over time, upgrade to a 5' minimum to meet ADA standards.

Continue the Falcon Trail/Carolina Thread Trail to Old Whitney and Badin via the inactive rail line (construct rail trail) from North Stanly High school.

Local Destinations
- School
- Park
- Post Office
- Shopping Center

Existing Bicycle & Pedestrian Features
- The Falcon Trail (Hiking/Mountain Biking)
- Sidewalk
- Central Park Bike Route (Signed)
- Stanly County Bike Route (Signed)

Proposed Bicycle & Pedestrian Features
- Shared Use Path
- Physically Separated Bike/Ped Facilities (from roadway) - outside existing pavement
- Physically Separated Bike/Ped Facilities (from roadway) - potentially within existing pavement
- Paved Shoulder
- Shared Lane
- Sidewalk
- Top Priority Project - Falcon Trail (Hiking/Mountain Biking - Alignment In Development)

0 0.5 1 Miles

LONG-TERM VISION

MAP 3.6 COMPREHENSIVE NETWORK

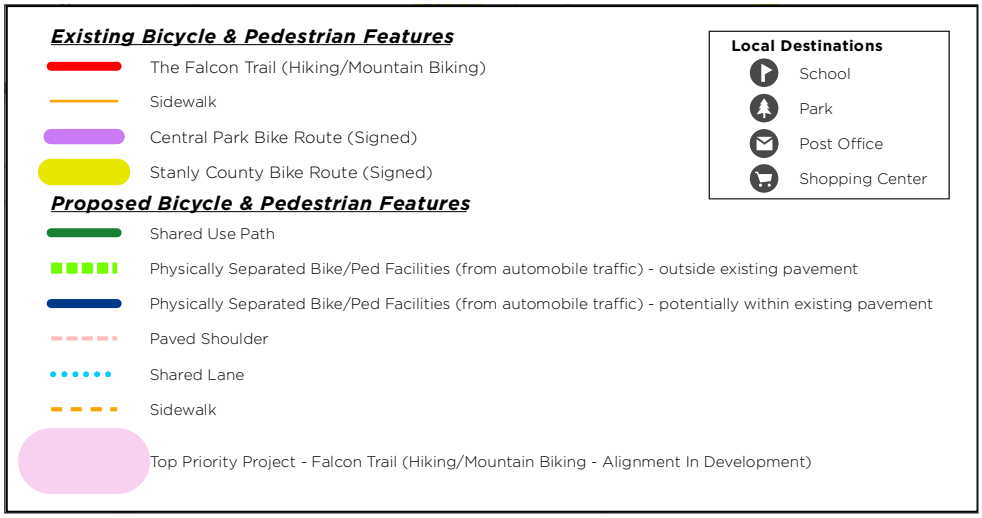
This map shows all opportunities in the entire study area. These are long term recommendations that may be implemented over time in conjunction with future roadway projects, new development, and/or a myriad of potential public/private/non-profit sector partnerships. While longer term, they are an important vision of this plan, as they show what the potential is for any given future development or roadway construction that may provide an opportunity for incorporating bicycle and pedestrian facilities. Each of these long-term recommendations should be considered on a case by case basis.

For physically separated bike/ped facilities (from roadway) - outside existing pavement: this refers to higher traffic volume/higher speed corridors that are currently too narrow to incorporate physically separated facilities within pavement. These roads include NC 49, US 52 north of NC 49, NC 8, NC 740 (east of Highland Drive), Old Salisbury Road, Main Street in Richfield, and Old US 52 in New London. Solutions in the future should consider sidepath design, but should also consider a combination of separated bike lanes and sidewalks during the design process. These corridors are significant barriers to walking and bicycling in North Stanly today.

For physically separated bike/ped facilities (from roadway) - within existing pavement: this refers to locations where pavement width and traffic volumes are such that physically separated bicycle facilities, and potentially pedestrian facilities (in the form of a sidepath constructed/delineated within the existing pavement) could be implemented within the existing pavement. US 52 south of NC 49, Gold Street and Main Street in New London (parking would need removed for the latter), are corridors where this could be feasible. For example, US 52 between New London and Richfield is 71' wide with AADT of 12,000. One lane of traffic could be removed (or even two, leaving two travel lanes and one center turn lane). If only one lane were to be removed and 12' were delineated for the four remaining lanes of traffic, 23' would remain to implement a 10' sidepath with a buffer of anywhere from 8' (if leaving 5' paved shoulder on one side) to 13'. However, an alternative corridor for a shared use path (paved) away from US 52 that could directly connect New London and Richfield should be considered as well in the long-term. The Falcon Trail, when completed between Richfield and New London, will serve as a spectacular walking/mountain biking corridor between the two communities. Having paved and unpaved connectivity opportunities between Misenheimer, Richfield, and New London will be important for comprehensive connectivity in the long-term. US 52 is a significant barrier to walking and bicycling in North Stanly today.

For paved shoulder recommendations, most of these roadways are under 1,000 AADT with speed limits of 45-55 mph. The Small Town and Rural Multimodal Network Design Guide recommends at least 5' paved shoulder in these instances (http://ruraldesignguide.com/visually-separated/paved-shoulder). While is may not be feasible to construct paved shoulders along every rural roadway, the Stanly County Bike Routes and Central Park Bike Routes should be improved over time at a minimum.

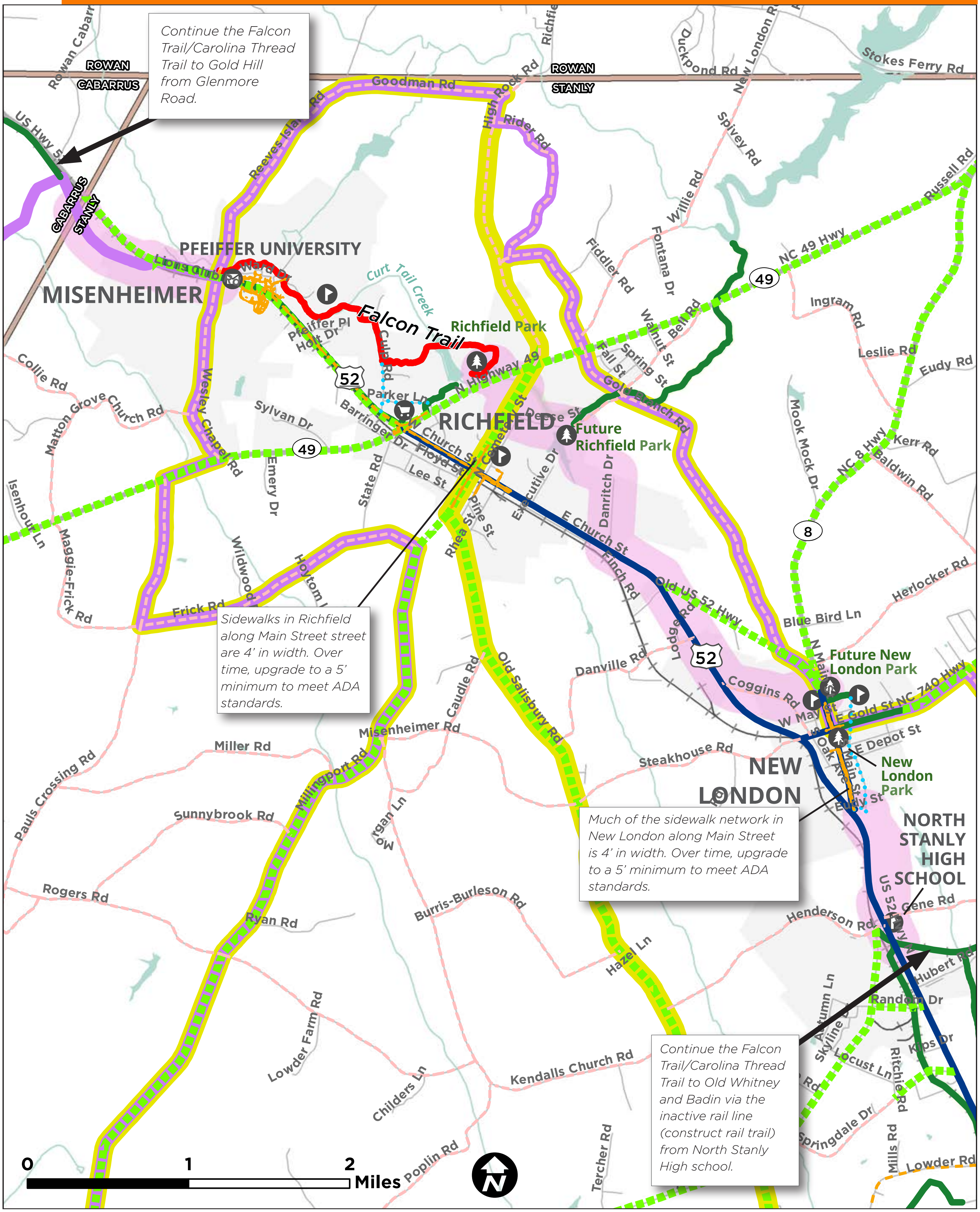
MAP 3.6 LEGEND



For more information on facility design guidance, please see the Small Town and Rural Multimodal Network Design Guide (www.ruraldesignguide.com) as well as a list of design resources in Appendix A.

LONG-TERM VISION

MAP 3.6 COMPREHENSIVE NETWORK



PROGRAM RECOMMENDATIONS

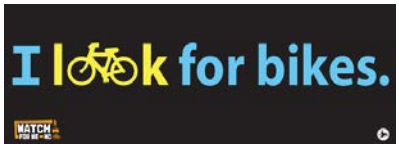
Below are key program recommendations that are essential and complementary to improvements in infrastructure. Each of the following program ideas (among others) were presented at committee meetings for input and discussion. See Chapter 4: Implementation for more information on other program ideas related to plan implementation.

Media Campaign to Educate Motorists, Bicyclists, and Pedestrians

Watch for Me NC is a comprehensive campaign aimed at reducing the number of bicyclists and pedestrians hit and injured in crashes with vehicles. The campaign consists of educational messages on traffic laws and safety, and an enforcement effort by area police.

Watch for Me NC is an ongoing statewide grant program administered by the NCDOT Division of Bicycle and Pedestrian Transportation (NCDOT DBPT). Misenhimer, Richfield, New London, and Stanly County should apply to this program to access materials and guidance. As a part of this program, the communities could:

- Distribute the educational materials made available by NCDOT at local events, with local businesses, and in renters' information packets and property owners' guest information books.
- Work with police officers to hand out bicycle lights along with bicycle and pedestrian safety cards.
- Broadcast program promotions and educational videos on the local government access channel.
- Enforce motorist rates of yielding to pedestrians.



Sample Programs and Resources:

Watch for Me NC website: watchformenc.org

City of Kannapolis - www.watchformenc.org/about/partner-community-profiles/kannapolis/

Comprehensive list of participants and further information - www.watchformenc.org/about/

Bicycle Helmet Initiative

Since 2007, the Bicycle Helmet Initiative has helped equipped thousands of children with a helmet – a simple and essential means of reducing bicyclist injuries and fatalities.

Funded by the proceeds from North Carolina's "Share the Road" specialty license plate, the program distributes helmets to government and non-government agencies conducting bicycle safety events for underprivileged children. Children are among the key demographic involved in bicycle-related incidents:

- On average, 20 bicyclists are killed each year in North Carolina, according to N.C. Department of Transportation statistics. One in six is under 16 years old.
- Children 5 to 14 years old visit emergency rooms for bicycle-related injuries more than any other sport or recreational activity.
- Typically, less than 50 percent of children wear safety helmets, according to Safe Kids Worldwide. The Helmet Safety Institute says wearing a helmet can reduce the risk of severe brain injuries by 88 percent.

Resources:

The application process and further information can be found at - https://www.ncdot.gov/initiatives-policies/safety/bicycle-helmets/Pages/default.aspx

Trail Coordinators Through Americorps Project Conserve

Currently, Polk County and Rutherford County NC each host an Americorps Trails Coordinator position through the Americorps' Project Conserve. This is a National Service program in which members come from across the nation to dedicate themselves to serving western North Carolina for an 11 month service term. The program focuses on collaboration with nonprofit organizations, community groups and local governments to provide service throughout the region.

In Polk County, the Trails Coordinator position works for the County Parks & Recreation Department through a grant from the Polk County Community Foundation. The Polk County Trails Coordinator manages trail work days, various partnerships and other trail related initiatives in the county.

In Rutherford County, the Trails Coordinator position is supported by a partnership between the Rutherford Outdoor Coalition, the Town of Lake Lure and Rutherford County. Similarly, the Rutherford County Trails Coordinator works to expand and improve Rutherford County's growing trail system and community connections to public lands, helping to administer current ROC Trail Boss, River Steward, and other programs and activities.

While Project Conserve is currenlty geared towards western North Carolina, Stanly County should work with Americorps to create a Trail Coordinator position similar to the examples provided above. The Friends of the North Stanly Trails and Parks, Carolina Thread Trail, Village of Misenheimer, Town of Richfield, and Town of New London, and Stanly County could serve as partners in this effort.

Dana Bradley, a former AmeriCorps employee who worked as the Trail Coordinator in Rutherford County and continues to work with the Rutherford Outdoor Coalition (ROC). Bradley uses a bicycle donated by ROC to patrol the Thermal Belt Rail Trail, checking for obstacles in the trail, litter, unauthorized users and rule violators.

Sample Programs and Resources:

Rutherford County Trails Coordinator:
www.rutherfordoutdoor.org/volunteer

Polk County Trails Coordinator:
www.polktrails.org/

Americorps Project Conserve:
http://conservingcarolina.org/americorps/

AMERICORPS

AmeriCorps Project Conserve
Western NC

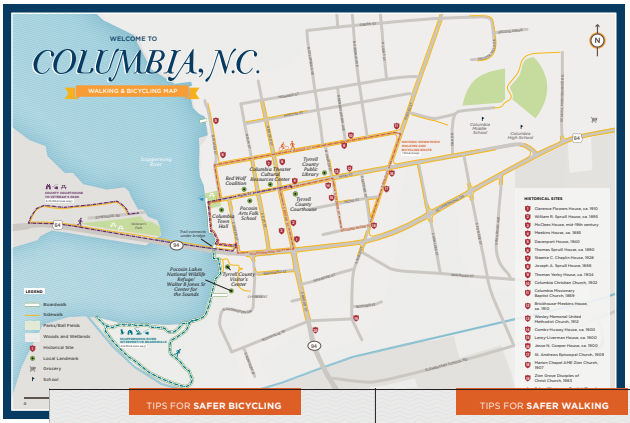
Local partnerships in Rutherford County and Polk County have enabled the community to utilize resources available through Americorps' Project Conserve program and create Trail Coordinator positions in each county.

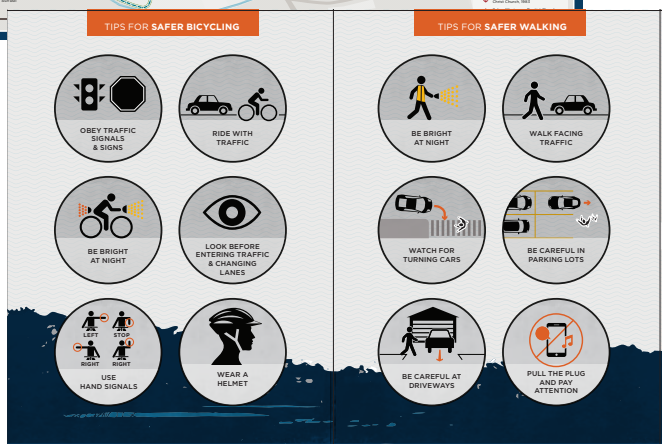
Hike & Bike Map

One of the most effective ways of encouraging people to walk more often or to ride a bicycle is through the use of maps and guides to show where one can walk and bike, and to guide people to enjoyable routes and destinations. These maps can be designed so that a portion of the map is devoted to bicycle and pedestrian safety education, such as informational graphics that demonstrate bicycle hand signals and how to share the road and the trail safely. The map should be made available online and printed, as needed, to be actively distributed to residents and visitors.

A North Stanly Map centered on the Falcon Trail could be created now, with future updates taking place as additional miles of trail are constructed. Safety education information should be included as well. The Friends of North Stanly Trails and Parks created a brochure for the Falcon Trail with general information — a map should be added to the brochure to complement the information that is currently displayed.

To the left are photos of the current Falcon Trail brochure that displays general information on the Falcon Trail.





Small towns in North Carolina are promoting walking and bicycling with maps that show bicycle and pedestrian facilities, highlighting destinations, and providing tips for safer walking and bicycling. Example to the right is from Columbia, NC.

Active Routes to School

The purpose of this program is to increase the number of North Carolinians that meet physical activity recommendations by the Centers for Disease Control and Prevention (CDC) by increasing the number of elementary and middle school students who safely walk and bike to or at school.

Active Routes to School is an NC Safe Routes to School Project supported by a partnership between the NC Department of Transportation and the NC Division of Public Health. Through this project, there are ten Active Routes to School project coordinators working across North Carolina to make it easier for elementary and middle school students to safely walk and bike to school. With proposed improvements in Richfield and potential connectivity to proposed extensions of the Falcon Trail, Richfield Elementary School should be a priority location for walk/bike to school programming through Active Routes to School. Stanly County is covered by the Region 4 Coordinator. The project coordinators work with partners in their communities to increase:

- One-time awareness events about the importance of Active Routes to School.
- The number of ongoing programs that encourage walking and biking to or at school.
- The number of trainings on how to implement Active Routes to School-related activities.
- The number of policies that support walking and biking to or at school.
- The number of safety features near schools.

These resources are available to all schools and communities in North Stanly County. It is recommended that all schools/communities utilize the Active Routes to School program resources as an opportunity to efficiently increase the number of elementary and middle school students who safely walk and bike to or at school.

Sample Programs and Resources:

Active Routes to School Coordinators:
www.communityclinicalconnections.com/What_We_Do/Active_Routes_To_School/_downloads/Active_Routes_Contact_Info_Coordinators_01.01.18.pdf

Active Routes to School:
www.communityclinicalconnections.com/What_We_Do/Active_Routes_To_School/index.html

A Bike to School event in North Carolina.

Signage and Wayfinding

A relatively low-cost program that the North Stanly communities can pursue is to develop and adopt a wayfinding signage policy and procedure, to be applied throughout the entire community to make it easier for people to find destinations. The Walk [Your City] program highlighted one such temporary program that could be implemented as part of this effort (see below). Bicycle route signs are another example of wayfinding signs, with the existing Central Park Bicycle Route signs serving as current examples in North Stanly County.

Posting signage that includes bicycle and walk travel times to major destinations can help to increase awareness of the ease and efficiency of bicycle and pedestrian travel.

For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website: www.pps.org/reference/signage_guide

Road signage has traditionally been expensive and car-centered, leaving walkers and bikers by the wayside. Walk [Your City] lets anyone from citizens to local organizations quickly and affordably promote healthy lifestyles, public safety, and human-centered transit. Walk Visit http://walkyourcity.org/ for more information.

POLICY RECOMMENDATIONS

One of the most cost effective active transportation implementation strategies for North Stanly County communities is to establish land development regulations and street design policies that promote walkable and bikeable new development and capital projects. As part of a comprehensive approach to developing recommendations for a more walkable and bikeable North Stanly County, the consultant team reviewed County and municipal ordinances, development standards and policies to identify general issues and opportunities impacting the bicycle and pedestrian environments across jurisdictions. The recommendations in this section generally fall under "Evaluation and Planning." The team analyzed these regulatory standards and policies through the lens of the project visions and goals and input on priority projects and corridors.

The consultant team has identified model regulatory and policy language from around North Carolina and the U.S. for elements including land use/transportation integration, connectivity, Complete Streets, and bicycle parking, enabling the municipal and County jurisdictions to maximize bicycle/pedestrian and greenway improvements in conjunction with new development, redevelopment, and corridor improvement projects. In addition, the recommendations include policy language additions to enhance greenway development.

The recommendations below are organized into three major categories of "Complete Streets and Greenways", "Pedestrian and Bicycle-oriented Urban Design Elements", and "Connectivity." All of the major categories are interrelated. These approaches will complement other specific capital projects, and education, enforcement, and evaluation recommendations provided elsewhere in this plan.

North Stanly Zoning Ordinance Review

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
Complete Streets and Greenways				
1.1 Adopt Complete Streets Policy A complete streets policy allows cities and towns to work towards creating a street network that encourages pedestrian and bicycle travel and provides safe and comfortable roadways for all users. The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users: (http://www.completestreets.org/resources/complete-streets-best-practices/).	None. **Inadequate**	The Village's Land Use Plan includes the following principles, which are the basis for a Complete Streets Policy and related regulatory standards: *4. Promote an active, vibrant, interactive community where residents can cross paths and meet their neighbors as they go about their lives within the Village. As Misenheimer grew, intertwined with Pfeiffer, a varied mix of traffic has evolved to move residents around the community. This mix of pedestrian, bicycle, and vehicular traffic has served to make us what we are. The Village seeks to accommodate and promote this mix of traffic modes.* *6. Promote development and traffic patterns that keep pedestrians and cyclists safe as they move about the Village. . . Continuing the theme of community interaction, sidewalks, bicycle paths, and pedestrian-friendly / bicycle-friendly traffic laws are envisioned to promote these environmentally friendly traffic modes, and to keep leisure traffic safe and enjoyable.* **Good**	None. **Inadequate**	None. **Inadequate**

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.2 Develop Complete Street Design Guidelines for a variety of contexts and all street/roadway user groups The subsections below include recommendations for basic elements of Complete Streets. These elements include sidewalks, bikeways, pedestrian-scaled lighting and street trees as some of the most fundamental elements for pedestrian and bicycle users. Access management, multi-modal level of service assessments, and traffic calming are also critical for developing complete street networks for all users through the development review and capital project implementation process. The NCDOT Complete Street Guidelines and the design guidelines that accompany this plan also include detailed recommendations on complete street design elements. In addition to the very thorough NCDOT Complete Streets Guidelines, The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users: (http://www.completestreets.org/resources/complete-streets-best-practices/). Stanly County and/or its municipalities could adopt and endorse the design guidelines that are part of this plan; the NCDOT guidelines and other national guidelines, including the FHWA Small Town and Rural Multimodal Networks guide.	Uses NCDOT *Subdivision Roads Minimum Construction Standards*, which are not currently complete street-oriented. Include by reference and allow for the application of the following NCDOT Guidance for street design: 1. NCDOT *Complete Streets Planning and Design Guidelines* (July 2012): http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf 2. NCDOT *Traditional Neighborhood Development (TND) Guidelines*: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf **Needs Improvement**	Uses NCDOT *Subdivision Roads Minimum Construction Standards*, which are not currently complete street-oriented. Include by reference and allow for the application of the following NCDOT Guidance for street design: 1. NCDOT *Complete Streets Planning and Design Guidelines* (July 2012): http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf 2. NCDOT *Traditional Neighborhood Development (TND) Guidelines*: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf **Needs Improvement**	None. **Inadequate**	Uses NCDOT *Subdivision Roads Minimum Construction Standards*, which are not currently complete street-oriented. Include by reference and allow for the application of the following NCDOT Guidance for street design: 1. NCDOT *Complete Streets Planning and Design Guidelines* (July 2012): http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf 2. NCDOT *Traditional Neighborhood Development (TND) Guidelines*: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf **Needs Improvement**

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.3. Require Pedestrian accommodations (sidewalks, crosswalks, etc) during new or redevelopment ***Sidewalks are the primary mode of pedestrian travel and are a crucial element in any pedestrian network. Sidewalks should be part of a continuous network, connected with crosswalks and separated from traffic with a buffer.*** *To maintain a high quality of service, sidewalks should be kept level, smooth, and free of debris, and they should be kept continuous across driveways and other entrances. They should also be kept free of conflicts, such as utility poles or fire hydrants, with sidewalk dimensions that allow for appropriate unobstructed walking space. (NCDOT Complete Streets Planning and Design Guidelines, p. 42)* For good model language, see City of Wilson, NC UDO, Section 6.3: Required Improvements for All Development (and related sections that follow) http://www.wilsonnc.org/attachments/pages/545/CH%206-Infrastructure%20Standards.pdf *"The minimum unobstructed walking space for a sidewalk on a street is five feet, with six feet or wider applications for higher-volume, higher-speed streets, and/or more intensive land uses."* -- NCDOT Complete Streets Planning and Design Guidelines (p 42)	***Section 66-72. Curb and Gutter and Sidewalks (SDA 13-01)*** *Sidewalks are at the option of the developer and any horizontal portion of curb & gutter is counted into the pavement width.* ***66-90 Construction criteria point approval system (SDA 13-01)*** *[Provides points for sidewalk, open space, street lighting, and recreation amenities including trails provided in new "major subdivision" developments, but does not require these elements per se.]* Sidewalks may not be appropriate in most rural parts of the County. However, there may be locations in urbanizing areas, certain corridors, and/or proximate to town centers, schools, and parks (for example), where sidewalks may be appropriately required. This could be based on recommendations in the bike/ped plan and/or established zoning or overlay districts based on proposed/allowed land uses which may benefit from pedestrian infrastructure, including business districts, single family residential developments of 3 dua or mixed use districts and/or developments in the "Primary Growth Area" of the Stanly County Land Use Plan. **Needs Improvement**	***SO 1.6.(6) Access to Parks, Schools, etc.*** *Streets and sidewalks shall be designed to assure convenient access to parks, greenways, playgrounds, schools, and other places of public assembly. Supplemental walkways not associated with streets may not be less than ten (10) feet in width and may be required to be large enough to provide vehicular access for maintenance vehicles.* **Good** intent language and language on walkway width. • Needs to be tied to specific requirements for where such "supplemental walkways" may be required, i.e., based upon adopted plans for greenways, etc. • 10' walkways should also be specified for bicycle use. ***SO 1.8 (F) Sidewalks.*** *Five (5) foot wide sidewalks shall be required on one (1) side of all streets serving five (5) or more lots. Sidewalks shall also be required on all streets that may be extended in the future to serve five (5) or more lots. . .Except in unusual circumstances, sidewalks may not be located less than five (5) feet, but preferably seven (7) to ten (10) feet, from the back of the curb or edge of pavement when no curb and gutter is required.* **Good** requirement language and specificity on walkway width. • This section, however, is not clear on whether sidewalks are required on arterials and collectors.	None. **Inadequate**	***Section 16.17 Pedestrian Walkways.*** *For all major subdivisions, sidewalks are required along one side of all residential streets. Sidewalks must be four (4') feet wide with four-inch (4") depth concrete with a tamped base.* **Good** requirement language and specificity on walkway width. Consider the following changes. • Minimum width should be 5 feet • Require sidewalks for new commercial or subdivision development along collector or arterial streets.

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.4. Require sidewalks or bike accommodations by roadway type Better standards would require or provides sidewalks on both sides of all collector and arterial streets and on at least one side of local streets where warranted by density and/or system connectivity in the Primary Growth Areas and based on plan recommendations. See the following link for more information: http://www.pedbikesafe.org/PEDSAFE/resources_guidelines_sidwalkswalkways.cfm Five foot wide sidewalks along local streets and six foot wide sidewalks along collectors and arterials are preferred minimum widths. Five feet is the minimum width required for two adults to walk side-by-side. In areas of higher density and mixed-use development, the minimum required width for sidewalks should be six feet or more. The land use context and density of development necessitates a greater level of requirement for sidewalk specifications. In areas such as downtown with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-18 feet wide. See NCDOT *Complete Streets Planning and Design Guidelines* for context-based pedestrian zone recommendations. See Chapter 4 of the NCDOT *Complete Streets Planning and Design Guidelines* for recommendations of sidewalk and bikeway type by roadway type. Also: NCDOT *Traditional Neighborhood Development (TND) Guidelines*: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf	Not required. **Inadequate** Sample language from City of Greenville, NC: ***ARTICLE Q. OTHER REQUIREMENTS*** ***SEC. 9-4-281 SIDEWALK REQUIREMENTS ALONG MAJOR THOROUGHFARES, MINOR THOROUGHFARES AND BOULEVARDS.*** *(A) Sidewalks shall be provided along both sides of major thoroughfares, minor thoroughfares and boulevards as designated on the adopted Highway Map from the Highway Element of the Comprehensive Transportation Plan, as amended, excluding: freeways, expressways, US-264 between NC-11 and NC-33, and Stantonsburg Dr. from B's Barbeque Rd. westward.*	Not clearly stated or required for arterials and collectors. **Inadequate**	None found. **Inadequate**	None found. **Inadequate**

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.5. Require pedestrian-scaled lighting (< 18' tall) required along streets and pathways Pedestrian-scale lighting should not exceed eighteen (18) feet in height over the sidewalk and should be located at key intersections or crossings and along preferred pedestrian routes. Pedestrian-scale lighting also enhances the illumination of bicycle facilities since the lighting is located closer to the sidewalk and roadway. See Town of Wendell UDO, Sections 11.10 and 11.11 for pedestrian-scaled lighting requirements by zoning district and for lighting requirements for greenways and walkways: http://files.wendell.gethifi.com/departments/planning/zoning/udo-unified-development-ordinance/Chapter_11_-_amended_071410.pdf	**Section 66-90** of the Subdivision Regulations provides incentives points for provision of "Street Lighting", but does not require it nor does it specify pedestrian-scaled lighting. Pedestrian-scaled street lighting should be required based on the type and density of development and location in the urbanized area, especially in downtown and commercial areas within the Primary Growth Area. **Needs Improvement**	***SO 1.8(G) Street Lights.*** *Street lighting will be installed in each new subdivision pursuant to a street lighting plan which shall be submitted to the Subdivision Administrator for approval. This shall be the responsibility of the developer. Street lights compatible in height and scale with the streetscape are strongly recommended.* **Good**, but could be improved if ped-scale lighting were required in certain locations or under certain conditions. See notes at far left.	None found. **Inadequate**	***16.26 (D) Streets lights*** *will be installed by the subdivider in all subdivisions of six (6) or more lots located within the Town of New London's corporate limits or in subdivisions within New London's extraterritorial jurisdiction whose utility service agreement or other agreement with the Town calls for the voluntary annexation of the subdivided property. Distances between streetlights shall not exceed 200 feet. Street light intensity and placement shall be determined by the Town in conjunction with the utility provider.* Pedestrian-scaled street lighting should be required based on the type and density of development and location in the urbanized area, especially in downtown and commercial areas. **Needs Improvement**
1.6. Require street trees between sidewalk and curb In addition to their value for improving the air quality, water quality, and beauty of a community, street trees can help slow traffic and improve comfort for pedestrians. Trees add visual interest to streets and narrow the street's visual corridor, which may cause drivers to slow down. When planted in a planting strip between the sidewalk and the curb, street trees also provide a buffer between the pedestrian zone and the street. See NCDOT *Complete Streets Planning and Design Guidelines* for context-based pedestrian and "green" zone recommendations. See also, Town of Wendell UDO Chapter 8, especially section 8.8, Street Trees: http://files.wendell.gethifi.com/departments/planning/zoning/udo-unified-development-ordinance/Chapter_8_-_amended_092611.pdf	Not required. May not be appropriate in most rural parts of the County. However, there may be locations in urbanizing areas, certain corridors, and/or proximate to town centers, schools, and parks (for example), where sidewalks may be appropriately required. This could be based on recommendations in the bike/ped plan and/or established overlay districts based on proposed land uses. Consider requiring in commercial areas and in Primary Growth Area and providing incentives for use in non-rural, suburban-type development. **Needs Improvement**	None required. **Inadequate**	None found. **Inadequate**	None required. **Inadequate**

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.7. Require designated bikeways (bike lanes, shoulders, greenways, etc) during new development or redevelopment Generally, as traffic volumes exceed 3,000 vehicles per day and traffic speeds exceed 25mph, facilities to separate bicycle and motor vehicle traffic are recommended. Multi-lane roads are typically more dangerous for all users because of the increased traffic volume, the potential for higher speeds, and the additional number of conflict locations due to turning vehicles. See Chapter 4 of the NCDOT *Complete Streets Planning and Design Guidelines* Also, see: • Chapters 6 of Wake Forest, NC UDO for recommendations for bikeways and greenways, esp. sections 6.8.2, 6.9, 6.10. http://www.wakeforestnc.gov/udo.aspx • Chapter 7 of the Wilson, NC UDO regarding greenways. http://www.wilsonnc.org/attachments/pages/545/CH%207-Parks%20&%20Open%20Space.pdf	Not required. **Inadequate**	Not required. However, the Subivision Ordinance does include the following language, which could be a regulatory basis for requiring bike/ped improvements which are part of an adopted plan: ***1.6 (B)(1): Consistency with Adopted Public Plans and Policies.*** *All subdivisions of land approved under these regulations shall be consistent with the most recently adopted public plans and policies for the area in which it is located. This includes general policy regarding development objectives for the area as well as specific policy or plans for public facilities such as streets, parks and open space, schools, and other similar facilities. Plans and policies for the community are on file in the offices of the Village of Misenheimer.* **Needs Improvement**	None found. **Inadequate**	Not required. **Inadequate**
1.8. Require dedication, reservation or development of greenways Consider adding requirements for greenway reservation, dedication, or construction in new developments where a greenway or trail is shown on an adopted plan or where a property connects to an existing or proposed greenway. See requirements in Wake Forest, NC UDO, Section 6..8.2 Greenways: *"When required by Wake Forest Open Space & Greenways Plan or the Wake Forest Transportation Plan, greenways and multi-use paths shall be provided according to the provisions [that follow in the section cited above]."* http://www.wakeforestnc.gov/udo.aspx	Not required. Currently, the County under certain conditions requires open space to be reserved in flood plain or floodway areas (Section 66-84.) This land may be appropriate for reservation or dedication for development of greenways where indicated on an adopted plan such as the Carolina Thread Trail Plan for Stanly County or the North Stanly County Bicycle and Pedestrian Plan. The County's subdivision ordinance also provides incentives for provision of open space and Active Recreation (including "walking trails"; Sec. 66-90), but does not require these elements. Adopted greenway alignments could be added as eligible Active Recreation element or be noted as an element for additional points. **Inadequate**	Not required. However, the Subivision Ordinance does include the following language, which could be a regulatory basis for requiring bike/ped improvements which are part of an adopted plan: ***1.6 (B)(1): Consistency with Adopted Public Plans and Policies.*** *All subdivisions of land approved under these regulations shall be consistent with the most recently adopted public plans and policies for the area in which it is located. This includes general policy regarding development objectives for the area as well as specific policy or plans for public facilities such as streets, parks and open space, schools, and other similar facilities. Plans and policies for the community are on file in the offices of the Village of Misenheimer.* **Needs Improvement**	None found. **Inadequate**	***Section 16.25 Dedication of Land for and/or Fees-in-Lieu of Park, Recreation, and Open Space Purposes (E) Greenways*** *Greenways may be credited against the requirements of Section 16.25 provided that such greenways are part of the Town's greenway plan and dedicated to public use.* **Good**
1.9. Develop an access management program or policy (continued on next page) Limiting turning movements on major roadways and requiring cross-access between adjacent	None. **Inadequate**	None. **Inadequate**	None. **Inadequate**	None. **Inadequate**

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/ Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
1.9. Develop an access management program or policy (continued from previous page) parcels of land, including commercial developments, is a great tool for reducing the amount of traffic and turning movements on major roads while increasing safety and connectivity for pedestrians, bicycles, and cars.	The NCDOT Complete Streets Planning and Design Guidelines provides recommended “Access Density” guidelines (See Chapter 4, page 61 and following). These guidelines could be the basis for regulatory updates to the county or municipal codes: http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf See Chapter 9 (Section 9.8) of Wake Forest, NC UDO for an access management policy example. https://www.wakeforestnc.gov/udo.aspx			
Pedestrian- and Bicycle-oriented Urban Design Elements				
2.1. Develop pedestrian-oriented form-based or design-based development standards Pedestrian and bicycle design requirements and land use policy are fundamental to creating a more walkable and bikeable community. *The City and County may* ***amend their ordinances to include Active Health Design guidelines*** *that require buildings to have:* *• an obvious pedestrian entrance,* *• pedestrian level entrance,* *• pedestrian level windows, and weather protection;* *• are oriented to the street;* *• have architectural details and pedestrian style signage on the street; and* *• emphasize alternative means of transportation. (Goldsboro, NC Envision 35 Implementation Strategy 1.63)* *“Form-based codes foster predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle. [Form-based codes are typically used to develop places that are pedestrian-friendly.]* *“Form-based codes address the relationship between building facades and the public realm [typically streets], the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in form-based codes are presented in both words and clearly drawn diagrams and other visuals.”* http://www.formbasedcodes.org/what-are-form-based-codes Some North Carolina communities that have form-based or design based elements in their ordinances include: • Belmont • Cornelius • Davidson • Huntersville • Knightdale • Salisbury • Wake Forest • Waynesville • Wendell • Wilson	None. **Inadequate** Promote and allow the use of the NCDOT Traditional Neighborhood Development (TND) Guidelines for subdivision development in appropriate locations: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf	None. **Inadequate** Promote and allow the use of the NCDOT Traditional Neighborhood Development (TND) Guidelines for subdivision development in appropriate locations: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf	None. **Inadequate** Promote and allow the use of the NCDOT Traditional Neighborhood Development (TND) Guidelines for subdivision development in appropriate locations: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf	None. **Inadequate** Promote and allow the use of the NCDOT Traditional Neighborhood Development (TND) Guidelines for subdivision development in appropriate locations: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf

North Stanly Zoning Ordinance Review *(continued)*

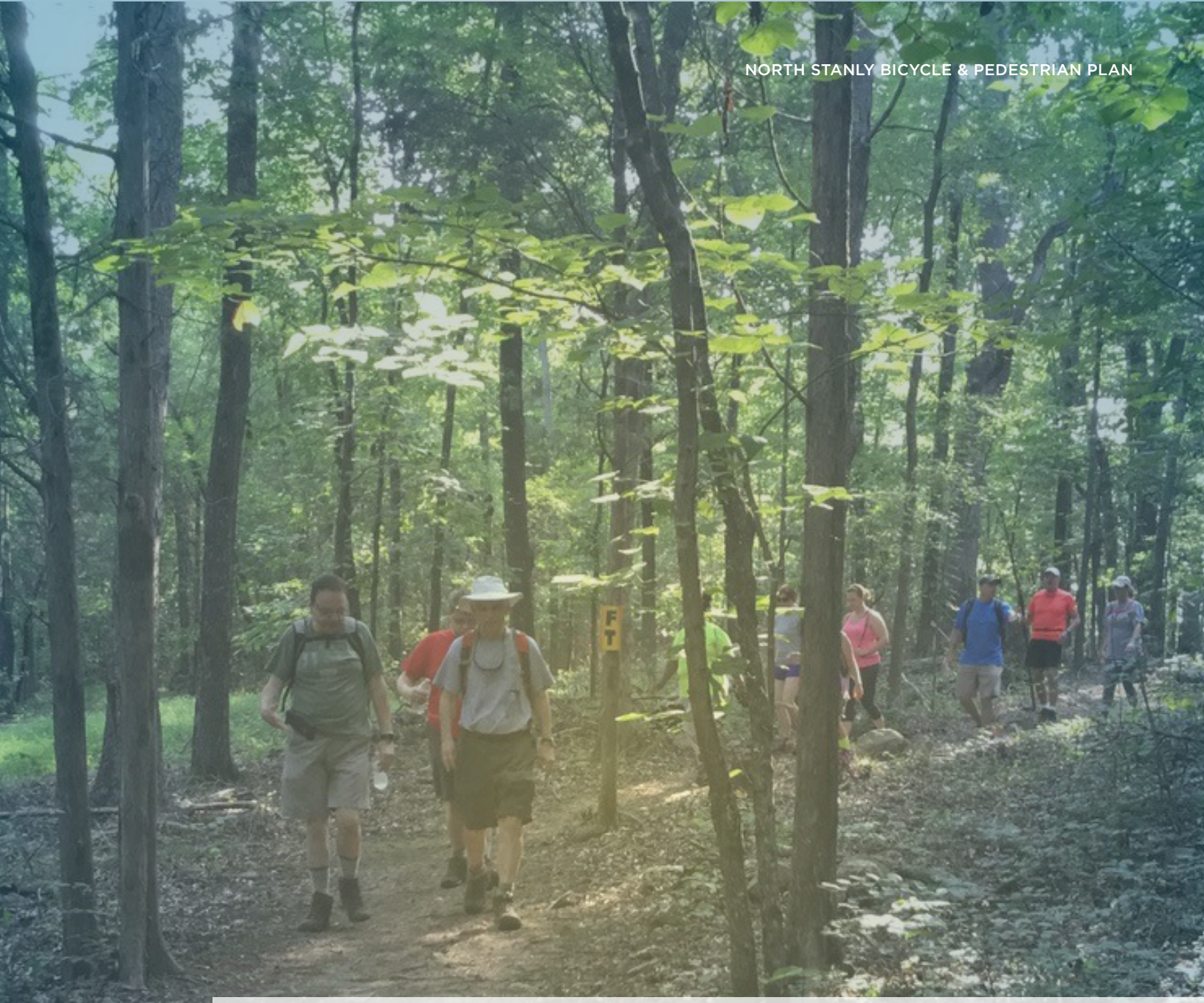
Topics/Strategies/Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
2.2. Adopt bicycle parking requirements Bicycles should receive equal consideration when calculating parking needs with specific calculations provided for determining the amount of bicycle parking provided by district type. Design and location standards for bicycle parking should be clearly stated to provide for safe and convenient access to destinations. Different standards of bicycle parking are needed for short-term visitors and customers and for longer term users like employees, residents, and students. See City of Wilson UDO, Chapter 9: Parking & Driveways, Section 9.4 and 9.6: http://www.wilsonnc.org/attachments/pages/545/CH%209-Parking%20&%20Driveways.pdf Good standards for bicycle parking design can be found through the Association of Pedestrian and Bicycle Professionals' *Bicycle Parking Guidelines.* (www.apbp.org) Bicycle Parking Model Ordinance, Change Lab Solutions: http://changelabsolutions.org/publications/bike-parking City of SF Zoning Administrator Bulletin for designs/layout/etc. The bulletin is in itself a great document that includes limits on hanging racks, how to park family bikes, and various configurations: http://208.121.200.84/ftp/files/publications_reports/bicycle_parking_reqs/Leg_BicycleParking_ZABulletinNo.9.pdf	None. **Inadequate**	None. **Inadequate**	None. **Inadequate**	None. **Inadequate**
Connectivity Requirements				
3.1. Revise block size requirements **"[A] Good [street] network provides more direct (shorter) routes for bicyclists and pedestrians to gain access to the thoroughfares and to the land uses along them (or allows them to avoid the thoroughfare altogether).** Likewise, good connections can also allow short-range, local vehicular traffic more direct routes and access, resulting in less traffic and congestion on the thoroughfares. This can, in turn, help make the thoroughfare itself function as a better, more complete street. For all of these reasons, **a complete local street network should generally provide for multiple points of access, short block lengths, and as many connections as possible."** (NCDOT *Complete Streets Planning and Design Guidelines*, p 59) Development density should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. **Maximum block length in any situation should rarely exceed 800-1000 feet for good connectivity. In areas with highest development density (town centers, commercial areas and higher density neighborhoods) block lengths can be as little as 200 feet.** In areas with blocks as long as 800 feet or greater, a pedestrian and/or bicycle path of 6-8 feet in width should be required, with an easement of 15-20 feet wide. See the example table on page 59 of the NCDOT *Complete Streets Planning and Design Guidelines* for a context-based approach to block size.	None. **Inadequate**	None. **Inadequate**	None. **Inadequate**	***Section 16.20 Layout of Blocks*** *(B) Block length shall be not less than 400 feet and shall not exceed 1,200 feet except in cases where, in the judgment of the Town Board, a longer block is necessary because of unusual topography or in order to complete a comprehensive neighborhood plan.* **Good** range of block lengths. However, need more specificity to reflect context-based standards as noted in recommendations in notes at far left.

North Stanly Zoning Ordinance Review *(continued)*

Topics/Strategies/Recommendations	Comments/Recommendations			
	Stanly County	Misenheimer	Richfield	New London
3.2. Require connectivity/cross-Access between adjacent land parcels **"[A] Good [street] network provides more direct (shorter) routes for bicyclists and pedestrians to gain access to the thoroughfares and to the land uses along them (or allows them to avoid the thoroughfare altogether).** Likewise, good connections can also allow short-range, local vehicular traffic more direct routes and access, resulting in less traffic and congestion on the thoroughfares. This can, in turn, help make the thoroughfare itself function as a better, more complete street. For all of these reasons, **a complete local street network should generally provide for multiple points of access, short block lengths, and as many connections as possible."** (NCDOT *Complete Streets Planning and Design Guidelines*, p 59) Requiring connectivity or cross-access between adjacent developments is a great tool for reducing the amount of traffic on major roads while increasing connectivity for pedestrians, bicycles, service vehicles, and neighborhood access. City of Wake Forest, NC UDO, Section 6.5, Connectivity: http://www.wakeforestnc.gov/udo.aspx The Wake Forest UDO provides requirements for when bicycle/pedestrian connections between parcels, public open space, and between cul-de-sacs is required.	***Section 66-75. Public and private roads. Subsection B.3:*** *"Where in the opinion of the Planning Staff it is necessary to provide for road access to adjoining parcels, a reserve connectivity strip for such purpose shall be extended to the boundary of such property(ies)."* It would be helpful to define the conditions under which connectivity may be required. This is especially important in the Primary Growth Areas of the county and within municipal boundaries. **Needs Improvement**	***SO 1.6 (B)(1): Consistency with Adopted Public Plans and Policies.*** *To the maximum extent practicable, all streets shall connect to create a comprehensive network of public areas which allows free movement of automobiles, bicyclists, and pedestrians.* Good intent language. Needs specific regulatory language to mandate when connections shall be required and of what form (e.g., street connection, bike/ped connection, etc.) **Needs Improvement**	None. **Inadequate**	None. **Inadequate**
3.3. Limit dead end streets or cul-de-sacs Dead end streets or Cul-de-sacs, while good at limiting motor vehicular traffic in an area, are a severe hindrance pedestrian and bicycle connectivity and over all neighborhood accessibility, including for emergency access and other services. • Provide quantifiable connectivity standards (see above) based on land use context and other guidelines • Consider requiring other traffic calming measures that allow for connectivity and improve the pedestrian and biking environment such as street trees, narrow street width standards, and T intersections. • Make the maximum length for Cul-de-sacs 250-300 feet to limit the distance that a person would have to travel along a cul-de-sac. And/or provide context and land use-based criteria for when longer cul-de-sacs are allowed. For good model language, see City of Wilson, NC UDO, Section 6.4: Connectivity: http://www.wilsonnc.org/attachments/pages/545/CH%206-Infrastructure%20Standards.pdf Or City of Wake Forest, NC UDO, Section 6.5, Connectivity: http://www.wakeforestnc.gov/udo.aspx	Not specifically addressed. **Inadequate**	***SO 1.7 (B)(3) Cul-de-sacs.*** *Cul-de-sacs (streets designed to be permanently closed at one end), may not be longer than 600 feet and must be terminated by a vehicular turnaround design as accepted by the Village of Misenheimer; provided, however, that this requirement may be waived where topographical or other unusual conditions exist.* See recommended strategies in far left column. **Needs Improvement**	None. **Inadequate**	***Section 16.21 Cul-de-sacs*** *Permanent dead-end streets shall not exceed 600 feet in length unless a variance is granted by the Town Board per Section 16.30. . . Where one cul-de-sac intersects with another cul-de-sac, the end of each cul-de-sac shall be no more than 600 feet from a through street, measured as stated above, unless a variance is granted by the Town Board.* See recommended strategies in far left column. **Needs Improvement**

North Stanly Zoning Ordinance Review Resources

Resources	Resources			
	Stanly County	Misenheimer	Richfield	New London
The following documents were referenced for this policy and regulatory review. Other references for best practices are listed below. REFERENCED DOCUMENTS AND OTHER RESOURCES: 1. NCDOT *Complete Streets Planning and Design Guidelines* (July 2012): http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf 2. NCDOT *Traditional Neighborhood Development (TND) Guidelines*: http://ntl.bts.gov/lib/22000/22600/22616/tnd.pdf 3. City of Wilson, NC UDO: http://www.wilsonnc.org/attachments/pages/545/CH%206-Infrastructure%20Standards.pdf 4. Town of Wendell, NC UDO: http://www.townofwendell.com/departments/planning/development/zoning/udo-unified-development-ordinance 5. City of Wake Forest, NC UDO: http://www.wakeforestnc.gov/udo.aspx 6. See Town of Davidson, NC Planning Ordinance, https://nc-davidson2.civicplus.com/DocumentCenter/View/4126 7. Association of Pedestrian and Bicycle Professionals' *Bicycle Parking Guidelines*. (www.apbp.org) 8. *Making Neighborhoods More Walkable and Bikeable, ChangeLab Solutions*: http://changelabsolutions.org/sites/default/files/MoveThisWay_FINAL-20130905.pdf 9. *Getting the Wheels Rolling: A Guide to Using Policy to Create Bicycle Friendly Communities*, ChangeLab Solutions http://changelabsolutions.org/bike-policies And other documents noted in this column in the rows above.	GUIDELINES AND REGULATIONS 1. Stanly County Zoning Ordinance: http://www.stanlycountync.gov/wp-content/upLoads/WebPDFs/Departments/PlanningZoning/Ordinances/zoningordinance.2016.pdf 2. Stanly County Subdivision Ordinance: http://www.stanlycountync.gov/wp-content/upLoads/WebPDFs/Departments/PlanningZoning/Ordinances/subdivision.01132014.pdf 3. NCDOT *Subdivision Roads Minimum Construction Standards* 4. Stanly County Land Use Plan: http://www.stanlycountync.gov/wp-content/upLoads/2012/10/Section-6-2010.pdf	GUIDELINES AND REGULATIONS 1. Misenheimer Zoning and Subdivision Ordinance (SO): http://villageofmisenheimer.com/zoning-ordinance-document/	GUIDELINES AND REGULATIONS 1. Richfield Zoning Ordinance 2. (No subdivision regulations provided or identified)	GUIDELINES AND REGULATIONS 1. New London Zoning Ordinance 2. Zoning Ordinance Article 16 Subdivisions



CHAPTER FOUR:
IMPLEMENTATION

Implementation Overview | Project Development Opportunities | Implementation Action Steps | Key Action Step Descriptions | Key Partners in Implementation | Performance Measures | Facility Development Methods

IMPLEMENTATION OVERVIEW

This chapter defines a structure for managing the implementation of the North Stanly Bicycle and Pedestrian Plan. Implementing the recommendations within this plan will require leadership and dedication to pedestrian and bicycle facility development on the part of a variety of agencies and partners. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. Even small amounts of local funding are essential for matching and leveraging outside sources. Most importantly, the North Stanly communities need not accomplish the recommendations of this plan by acting alone; success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations. Funding resources that may be available are presented in Appendix B of this plan.

Given the present day economic challenges faced by local governments (as well as their state, federal, and private sector partners), it is difficult to know what financial resources will be available at different time frames during the implementation of this plan. However, there are still important actions to take in advance of major investments, including key organizational steps, the initiation of education and safety programs, and the development of strategic, phased, bicycle and pedestrian facilities. Even just getting a project "shovel-ready" can be a huge step towards implementation, as many outside funding sources look more favorably upon projects that are already in public right-of-way, planned, and designed. Following through on these priorities will allow the key stakeholders to prepare for the development of larger pedestrian and trail projects over time, while taking advantage of strategic opportunities as they arise.

The Friends of North Stanly Trails and Parks and members of this projects steering committee are good candidates for leading the way for plan implementation. Pictured above: ribbon cutting for the opening of the Falcon Trail.

PROJECT DEVELOPMENT OPPORTUNITIES FOR IMPLEMENTING THE NORTH STANLY BICYCLE AND PEDESTRIAN PLAN

Project development opportunities and key players are summarized in this graphic, and in Table 4-1 that follows.

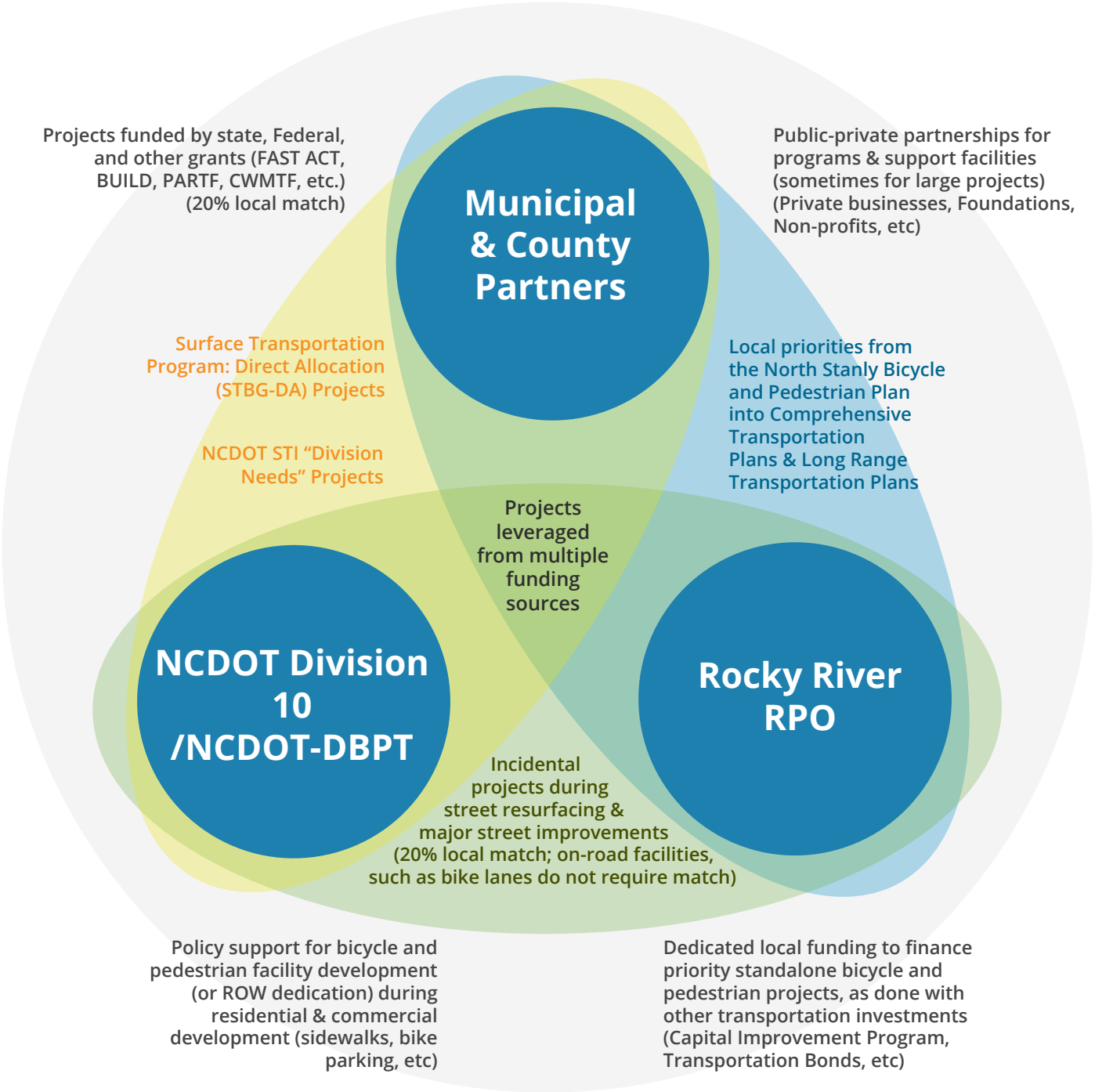


Table 4.1 Implementation Action Steps

TASK	LEAD	SUPPORT	DETAILS	PHASE
ADMINISTRATIVE ACTION STEPS				
Present this plan to County Board & Municipal Councils.	Project Consultants	Project Steering Committee	Presentation to Village of Misenheimer, Town of Richfield, Town of New London at joint meeting in Summer 2018.	Short-term (2018)
Approve this plan.	NCDOT Bike/Ped Division	Project Consultants	Official letter of approval in Summer 2018.	Short-term (2018)
Adopt this plan.	Village of Misenheimer, Town of Richfield, Town of New London	Project Steering Committee, Project Consultants	Through adoption, the Plan becomes an official planning document of the municipalities. Adoption does not commit the municipalities to dedication of funding, but rather shows intention to support plan implementation over time. It also signals to outside funding groups that Misenheimer, Richfield, and New London have undergone a successful, supported planning process, which is key to securing outside funding. See page 85 for more information.	Short-term (2018)
Designate an advisory committee for the implementation of this plan.	Village of Misenheimer, Town of Richfield, Town of New London	Friends of North Stanly Parks and Trails, Project Steering Committee	Leadership from the municipalities, the Friends of North Stanly Trails and Parks, and members of the Project Steering Committee should become the advisory committee for guiding the implementation of this plan (often called a Bicycle and Pedestrian Advisory Committee or "BPAC"). The BPAC should focus on implementation of this plan. For the purpose of these action steps, this group will be referred to as "BPAC" below. See page 85 for more information.	Short-term (2018)
Communicate the goals of this plan and its top priority projects to other local and regional groups.	BPAC	Village of Misenheimer, Town of Richfield, Town of New London, Friends of North Stanly Parks and Trails	The purpose of this step is to network with potential project partners, and to build support for implementing the top projects. Possible groups to receive a presentation: Rocky River RPO, Carolina Thread Trail, local businesses, Pfeiffer University, Stanly County Planning & Zoning, Stanly County Health Department, Stanly County Chamber of Commerce, NCDOT Division 10, etc.	Short-term/ Ongoing (2018-)
Begin annual meeting with key project partners.	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, NCDOT Division 10 and Bike/Ped Division, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	Key project partners should meet on an annual basis to evaluate the implementation of this Plan. Meetings could also include on-site tours of priority project corridors. See page 85 for more information.	Short-term/ Ongoing (2018-)
Plan Update	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, NCDOT, Stanly County	This plan should be updated by 2023 (about five years from adoption). If many projects and programs have been completed by then, a new set of priorities should be established. If not, a new implementation strategy should be established.	Long-Term (2023)

Table 4.1 Implementation Action Steps (Continued)

TASK	LEAD	SUPPORT	DETAILS	PHASE
INFRASTRUCTURE & FUNDING ACTION STEPS				
Complete Priority Project #1.	Friends of North Stanly Parks and Trails	BPAC, Village of Misenheimer, Town of Richfield, Town of New London, Rocky River RPO, Carolina Thread Trail, NCDOT Division 10, Stanly County	Much of the groundwork for implementing Falcon Trail extensions north and to the south has been led by the Friends of the North Stanly Trails and Parks and community partners. The specific alignment is currently under development and the completion of these extensions are the top priority for North Stanly.	Short-term/ Ongoing (2018-)
Submit to NCDOT for STIP prioritization scoring the projects identified within this plan.	Rocky River RPO	Village of Misenheimer, Town of Richfield, Town of New London, BPAC, NCDOT Division 10	The RPO, municipalities, BPAC, and NCDOT Division 10 should coordinate to fund this plan's recommendations over time. Use the plan cut-sheets and recommendation maps to communicate project details.	Short-term/ Ongoing (2018-)
Seek multiple funding sources and facility development options.	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	NCDOT Division 10, Rocky River RPO, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	Chapter 3 contains project cost estimates and Appendix B contains potential funding opportunities. See page 86 for more on development options.	Short-term/ Ongoing (2018-)
Complete all priority projects.	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, NCDOT Division 10 and Bike/Ped Division, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	Chapter 3 provides information on the Priority Projects. Aim to complete all eight in 5-10 years. Projects by community - Misenheimer (Projects 1, 4, and 5); Richfield (Projects 1, 3, 6, and 7); and for New London (Projects 1, 2, and 8).	Ongoing (2018-2028)
Develop a long-term funding strategy	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, NCDOT Division 10, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	To allow continued development of the project recommendations, capital funds for bicycle and pedestrian facility construction should be set aside every year. Powell Bill funds should be programmed for facility construction. Funding for an ongoing maintenance program should also be included in operating budgets.	Short-term/ Ongoing (2018-)
Install bike racks at key destinations.	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	Install bike racks at parks, public buildings, schools, shopping centers, and other important destinations (see destinations shown on Map 2.1, for example locations).	Short-term/ Ongoing (2018-)
Coordinate with NCDOT Division 10 on their 3-year road resurfacing schedule (and any short term changes to it) to accomplish projects that could be furthered with resurfacing projects.	Village of Misenheimer, Town of Richfield, Town of New London, BPAC	Rocky River RPO, Stanly County, NCDOT Division 10	Resurfacing is a very important part of implementing bike facilities (particularly in RPO communities) and comes at very little cost. It is essential for implementation that the municipalities stay in close touch with NCDOT Division 10 Operations and Maintenance staff to stay on top of the resurfacing schedule and keep closely abreast of any updates or changes to the schedule. Checking in with the Division at least once every quarter is not too often. Additionally, BPAC should include quarterly reviewing the three-year resurfacing/restriping schedule from Division 10 to ensure there are no missed opportunities for project improvements to be made as this work proceeds.	Short-term/ Ongoing (2018-)

Table 4.1 Implementation Action Steps (Continued)

TASK	LEAD	SUPPORT	DETAILS	PHASE
PROGRAM ACTION STEPS				
Launch new programs.	Village of Misenheimer, Town of Richfield, Town of New London & BPAC	NCDOT Bike/ Ped Division, Active Routes to School Region 4 Coordinator, Rocky River RPO, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	New programs should be launched, as described in Chapter 3, including Watch For Me NC, a hike & bike map, Trail Coordinator through Americorps Project Conserve, Active Routes to School, and signage/wayfinding (see pages 66-70).	Ongoing (2018-)
Consider reducing speed limits in some locations.	Village of Misenheimer, Town of Richfield, Town of New London, & Stanly County	NCDOT, BPAC	Consider lowering the speed limits along key corridors, such as Main Street (New London) and Culp Road (Richfield). Installing temporary speed feedback signs is another traffic calming strategy.	Ongoing (2018-)
Seek designation as a Bicycle-Friendly Community & Walk-Friendly Community.	Village of Misenheimer, Town of Richfield, Town of New London & BPAC	Stanly County, Rocky River RPO, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails	The development and implementation of this plan is an essential first step toward becoming a designated Bicycle-Friendly and Walk-Friendly Community. With progress on program, policy, and infrastructure recommendations, the North Stanly communities should be in a position to apply for and receive recognition by 2023. See page 87 for more information.	Mid- to Long-term (-2023-)
POLICY ACTION STEPS				
Update zoning and development ordinances to better support walking and bicycling.	BPAC	Village of Misenheimer, Town of Richfield, Town of New London, Stanly County	See the recommended policies for the zoning ordinance subdivision regulations on pages 71-80.	Short-term (2018)
Develop new policies & approaches for implementation.	BPAC	Village of Misenheimer, Town of Richfield, Town of New London, Stanly County	Establish land right-of-way acquisition mechanisms, coordinate development plans, & implement driveway access management. See the recommended policies for the zoning ordinance subdivision regulations on pages 71-80.	Ongoing (2018-)
Notify municipalities of upcoming roadway reconstruction, resurfacing, and restriping projects in North Stanly.	NCDOT Division 10, Rocky River RPO	Village of Misenheimer, Town of Richfield, Town of New London, Stanly County, BPAC	Provide sufficient time for comments (in advance of the design phase); Incorporate bicycle/pedestrian recommendations from this Plan into future updates to the CTP and into future project design plans.	Ongoing (2018-)
Educate and train law enforcement officers and others about the laws related to walking and bicycling in North Carolina, and help educate others.	Village of Misenheimer, Town of Richfield, Town of New London, Stanly County	NCDOT Bike/Ped Division, BPAC	Police staff should be familiar with state bicycle and pedestrian policies and laws, including best practices for reporting on crashes involving people walking or bicycling: https://connect.ncdot.gov/projects/BikePed/Pages/Policies-Guidelines.aspx Also, the National Highway Traffic Safety Administration has made available a 2-hour self-paced interactive video training for all law enforcement officers: https://one.nhtsa.gov/Driving-Safety/Bicycles/Enhancing-Bicycle-Safety:-Law-Enforcement%27s-Role	Short-term (2018)

KEY ACTION STEP DESCRIPTIONS

ADMINISTRATIVE ACTION STEPS

Adopt This Plan

Before any other action takes place, the Village of Misenheimer, Town of Richfield, and Town of New London should adopt this plan. This should be considered the first step in implementation. Through adoption of this plan and its accompanying maps as North Stanly's official bicycle and pedestrian plan, the municipalities will be better able to shape transportation and development decisions so that they fit with the goals of this plan. Most importantly, having an adopted plan is extremely helpful in securing funding from state, federal, and private sources. Adopting this plan does not commit North Stanly to dedicate or allocate funds, but rather indicates intent to implement this plan over time, starting with these action steps.

The following entities should adopt this plan:

- Village of Misenheimer
- Town of Richfield
- Town of New London
- Rocky River RPO

This plan and its recommended facilities should be approved by the NCDOT, and they should be included in the future planning of the NCDOT Planning Branch, the Division of Bicycle and Pedestrian Transportation (DBPT), and NCDOT Division 10. This plan's recommendations should also be integrated into an update to the Comprehensive Transportation Plan (CTP) for Stanly County. NCDOT should refer to this document when assessing the impact for future projects and plans.

Form an Advisory Committee

Leadership from the municipalities, the Friends of North Stanly Trails and Parks, and members of this project's steering committee should become the advisory committee for guiding the implementation of this plan (often called a Bicycle and Pedestrian Advisory Committee or "BPAC"). The BPAC should focus on implementation of this plan.

The BPAC should have representation from active pedestrians and commuting and recreational cyclists and should champion the recommendations of this plan. The formation of this group would be a significant step in becoming designated as a Bicycle Friendly and Walk Friendly Community (see section that follows). The committee would provide a communications link between the residents of the community and local government. They should also continue to meet periodically, and be tasked with assisting municipal staff in community outreach, marketing, and educational activities recommended by this plan.

Begin Annual Meeting With Key Project Partners

Coordination between key project partners will establish a system of checks and balances, provide a level of accountability, and ensure that recommendations are implemented. The municipalities and BPAC should work with Rocky River RPO to organize this meeting and ensure key collaborative efforts are communicated. This meeting should include representatives from NCDOT Division 10 and Bike/Ped Division, Stanly County, Pfeiffer University, Carolina Thread Trail, Friends of North Stanly Parks and Trails, and any other local stakeholders wishing to participate. The purpose of the meeting should be to ensure that this plan's recommendations are integrated with other transportation planning efforts in the region, as well as long-range and current land use planning, economic development planning, and environmental planning. Attendees should work together to identify and secure funding necessary to immediately begin the first year's work, and start working on a funding strategy that will allow the Town to incrementally complete each of the suggested physical improvements, policy

changes and programs over a 5-10 year period. A brief progress benchmark memo should be a product of these meetings, and participants should reconfirm the plan's goals each year. The meetings could also occasionally feature special training sessions on pedestrian, on-road bicycle, and trail issues.

INFRASTRUCTURE & FUNDING ACTION STEPS

Identify Funding

Achieving the vision defined within this plan will require, among other things, a stable and recurring source of funding. Communities across the country that have successfully engaged in pedestrian and bicycle programs have relied on multiple funding sources to achieve their goals. No single source of funding will meet the recommendations identified in this Plan. Instead, stakeholders will need to work cooperatively with municipal, state, and federal partners as well as private and non-profit sector partners to generate funds sufficient to implement the program.

Federal and state grants should be pursued along with local funds to pay for necessary right-of-way acquisition and project design, construction, and maintenance expenses. "Shovel-ready" designed projects should be prepared in the event that future federal stimulus funds become available. Additional recommended funding sources may be found in Appendix B.

Seek Multiple Funding Sources and Facility Development Options

Multiple approaches should be taken to support bicycle and pedestrian facility development and programming. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall system. Dedicated local funding sources will be important for the implementation of this plan. Capital and local funds for pedestrian facilities and trail construction should be set aside every year, even if only for a small amount. Small amounts of local funding can be matched to outside funding sources or could be used to enhance NCDOT projects with bicycle and pedestrian features that may otherwise not be budgeted for by the state. A variety of local, state, and federal options and sources exist and should be pursued.

A priority action is to immediately evaluate the recommendations against transportation projects that are currently programmed in the Transportation Improvement Program (TIP) to see where projects overlap, compliment, or conflict with each other. The Town should also evaluate which of the proposed projects could be added to future TIP updates, and should coordinate closely with NCDOT Division 10 and the Rocky River RPO on priority projects.

See Appendix B: Funding Resources for more on this topic.

POLICY ACTION STEPS

Adopt a Complete Streets Policy and Update Local Development Ordinances

There is a growing national trend towards integrating bicycling and walking as routine elements in roadway projects. This movement has developed under the name of "Complete Streets," which is defined by the Complete the Streets Coalition as follows:

"Complete Streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street."

The Safe Routes to School National Partnership (SRTSNP) can assist municipal efforts in writing Complete Streets policy. Technical assistance can range from providing resources to assistance in creating marketing campaigns and Complete Streets language. Additionally, the development ordinance changes recommended in this plan are key to implementing Complete Streets with new development.

Coordinate Development Plans

Misenheimer, Richfield, and New London should ensure that adopted bicycle, pedestrian, trail and shared use path recommendations from this plan are included in future residential and commercial developments that connect with such proposed facilities. **See Chapter 3 for an analysis of existing zoning ordinances and recommendations for improvement.**

PROGRAM ACTION STEPS

Launch New Programs

Education, encouragement, and enforcement campaigns could also occur as new facilities are built, through cooperation between the municipalities, the BPAC, and groups such as Friends of North Stanly Trails and Parks. When an improvement has been made, the roadway environment has changed and proper interaction between motorists, bicyclists, and pedestrians is critical for the safety of all users. A campaign through local television, on-site enforcement, education events, and other methods will bring attention to the new facility, and educate, encourage, and enforce proper use and behavior. **Chapter 3 (pages 66-70) provides several program ideas to choose from.**

Provide Enforcement and Education Training for Police Officers

Law enforcement officers have many important responsibilities, yet pedestrians and bicyclists remain the most vulnerable forms of traffic. In many cases, citizens (and even sometimes officers) are not fully aware of state and local laws related to bicyclists and pedestrians. Training on this topic can lead to additional education and enforcement programs that promote safety. Training for local police officers could be done through free online resources available from the National Highway Traffic Safety Administration (NHTSA) (see https://one.nhtsa.gov/Driving-Safety/Bicycles/Enhancing-Bicycle-Safety:-Law-Enforcement%27s-Role).

Another option is to apply to participate in future Watch for Me, NC campaigns offered by the NCDOT Bike/Ped Division. A key component of the campaign is to offer bicycle and pedestrian law enforcement training to local police officers.

Become Designated as a Walk Friendly and Bicycle Friendly Community

A goal for Misenheimer, Richfield, and New London should be to seek a "Bicycle Friendly Community" (BFC) designation from the League of American Bicyclists. The BFC campaign is an award program that recognizes municipalities that actively support bicycling activities and safety. A Bicycle Friendly Community provides safe accommodation for bicycling and encourages its residents to bicycle for transportation and recreation. Boone and Davidson are examples of small North Carolina towns that have become designated as Bicycle Friendly Communities.

Similarly, the Walk Friendly Community (WFC) Campaign is an awards program that recognizes municipalities that actively support pedestrian activity and safety. A Walk Friendly Community provides safe accommodation for walking and encourages its residents to walk for transportation and recreation. The program is maintained by the UNC Highway Safety Research Center's Pedestrian and Bicycle Information Center, with support from a variety of national partners.

Becoming designated as a Bicycle- and Walk-Friendly Community signals to current residents, potential residents, and visitors that the town is a safe and welcoming place for individuals and families to live and recreate. The development and implementation of this plan is an essential first step toward becoming a Walk- and Bicycle-Friendly Community.

With this plan and its top recommendations completed, the North Stanly communities should be in a position to apply for and receive a bronze-level BFC status and recognition as a Walk Friendly Community.

KEY PARTNERS IN IMPLEMENTATION

ROLE OF THE TOWN COUNCILS

Misenheimer, Richfield, and New London Town Councils and Mayors will be responsible for adopting this plan. Through adoption, the municipal leadership is further recognizing the value of bicycle and pedestrian transportation and is putting forth a well-thought out set of recommendations for improving public safety and overall quality of life (see the 'Benefits of Planning for A Walkable and Bikeable Community' section in Chapter 1). By adopting this plan, the communities are signifying that they are prepared to support the efforts of other key partners in the plan's implementation.

Adoption of this plan is in line with public support. The online comment form for the planning process yielded over 200 responses and showed strong support for improving bicycling and pedestrian conditions.

ROLE OF THE MUNICIPAL PLANNING BOARD

The Planning Board serves as an advisory board to the Council on matters of planning and zoning. The Planning Board should be prepared to:

- Become familiar with the recommendations of this plan, and support its implementation.
- Learn about pedestrian- and bicycle-related policies in North Carolina. (see: https://www.ncdot.gov/bikeped/lawspolicies/)

ROLE OF THE BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE (BPAC)

The Committee should be prepared to:

- Meet with municipal staff and evaluate progress of the plan's implementation and offer input regarding pedestrian, bicycle, and trail-related issues.
- Assist municipal staff in applying for grants and organizing bicycle- and pedestrian-related events and educational activities.
- Build upon current levels of local support for pedestrian and bicycle issues and advocate for local project funding.

ROLE OF THE LOCAL NCDOT DIVISION 10

Division 10 of the NCDOT is responsible for the construction and maintenance of pedestrian and bicycle facilities on NCDOT-owned and maintained roadways in North Stanly, or is expected to allow for the municipalities to do so with encroachment agreements. Misenheimer, Richfield, and New London should be proactive and take the lead in communicating with and working with Division 10, but Division 10 should also be prepared to do the following, as they are able:

- Recognize this plan as not only an adopted plan of the municipalities, but also as an approved plan of the NCDOT.
- Become familiar with the bicycle and pedestrian facility recommendations for NCDOT roadways in this plan (Chapter 3); take initiative in incorporating this plan's recommendations into the Division's schedule of improvements whenever possible.
- Become familiar with the design standards listed in Appendix A of this plan; construct and maintain recommended facilities using the highest standards allowed by the State (including the use of innovative treatments on a trial basis).
- Notify municipal staff of all upcoming roadway reconstruction or resurfacing/restriping projects in North Stanly, no later than the design phase. Provide sufficient time for comments from municipal staff.
- If needed, seek guidance and direction from the NCDOT Division of Bicycle and Pedestrian Transportation on issues related to this plan and its implementation.

ROLE OF THE POLICE DEPARTMENT

Police departments are responsible for providing the community the highest quality law enforcement service and protection to ensure the safety of the citizens and visitors. The Police Department should be prepared to:

- Become experts on pedestrian-and bicycle related laws in North Carolina (see: https://www.ncdot.gov/bikeped/lawspolicies/).
- Continue to enforce not only bicycle- and pedestrian-related laws, but also motorist laws that affect walking and bicycling, such as speeding, running red lights, aggressive driving, etc.
- Participate in bicycle- and pedestrian-related education programs.
- Review safety considerations as projects are implemented.

ROLE OF DEVELOPERS

Developers in North Stanly can play an important role in facility development whenever a project requires the enhancement of transportation facilities or the dedication and development of on-road bicycle facilities, sidewalks, trails or crossing facilities. Developers should be prepared to:

- Become familiar with the benefits, both financial and otherwise, of providing amenities for walking and biking (including trails) in residential and commercial developments.
- Revised development regulations should require that developers install bike and pedestrian infrastructure and/or contribute in-lieu fees as part of the subdivision review and approval process
- Be prepared to account for bicycle and pedestrian circulation and connectivity in future developments.

ROLE OF LOCAL & REGIONAL STAKEHOLDERS

Stakeholders for bicycle and pedestrian facility development and related programs, such as Stanly County, Rocky River RPO, Pfeiffer University, Friends of North Stanly Trails and Parks, Carolina Thread Trail, and other local organizations play important roles in the implementation of this plan. Local and regional stakeholders should be prepared to:

- Become familiar with the recommendations of this plan, and communicate & coordinate with the municipalities for implementation, specifically in relation to funding opportunities, such as grant writing and developing local matches for facility construction.
- Rocky River RPO should work with the municipalities on submitting pedestrian and bicycle infrastructure projects for evaluation within the State Transportation Improvement Program (STIP).
- Stanly County should coordinate with the municipalities on trail development.
- Business owners and organizations should look for opportunities to partner on specific projects, such as trail connectivity, streetscape improvements, or comprehensive signage and wayfinding projects.

ROLE OF LOCAL RESIDENTS, CLUBS AND ADVOCACY GROUPS

Local residents, clubs, and advocacy groups also play a role in the success of this plan. BPAC should be prepared to engage local residents and groups by:

- Asking for input regarding pedestrian and bicycling issues in North Stanly.
- Enlisting volunteers for bicycle- and pedestrian-related events and educational activities and/or to participate in such activities.
- Encouraging people to speak at Council meetings and advocate for local pedestrian and bicycle project and program funding.

ROLE OF VOLUNTEERS

Services from volunteers, students, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. The Falcon Trail is currently maintained by a group

of dedicated volunteers as part of the Friends of North Stanly Trails and Parks.

Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for many of the program ideas outlined in Chapter 3 of this plan. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to the town's trail, bicycle, and pedestrian networks.

PERFORMANCE MEASURES (EVALUATION AND MONITORING)

North Stanly should establish performance measures to benchmark progress towards fulfilling the recommendations of this plan. BPAC should play a key role in presenting these performance measures in an annual evaluation update to the municipal councils. Performance measures could address the following aspects of pedestrian and bicycle transportation and recreation in North Stanly:

- *Safety.* Measures of pedestrian- and bicycle-related crashes and injuries.
- *Facilities.* Measures of how many pedestrian and bicycle facilities have been funded and constructed since the plan's adoption.
- *Maintenance.* Measures of existing sidewalk/crosswalk or bicycle facility deficiency or maintenance needs.
- *Counts.* Measures of pedestrian and/or bicycle traffic at specific locations.
- *Education, Encouragement and Enforcement.* Measures of the number of people who have participated in part of a pedestrian- or bicycle-related program since the plan's adoption.

FACILITY DEVELOPMENT METHODS

This section describes different construction methods for the proposed pedestrian and bicycle facilities outlined in Chapter 3. Note that many types of transportation facility construction and maintenance projects can be used to create new bicycle and pedestrian facilities. It is much more cost-effective to provide bicycle and pedestrian facilities during roadway construction and reconstruction projects than to initiate the improvements later as "retrofit" projects.

To take advantage of upcoming opportunities and to incorporate bicycle and pedestrian facilities into routine transportation and utility projects, North Stanly should keep track of NCDOT's projects and any other local transportation improvements. While doing this, municipal staff should be aware of the different procedures for state and local roads and interstates.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STRATEGIC TRANSPORTATION INVESTMENTS (STI)

The NCDOT's State Transportation Improvement Program is based on the Strategic Transportation Investments Bill, signed into law in 2013. The Strategic Transportation Investments (STI) Initiative introduces the Strategic Mobility Formula, a new way to fund and prioritize transportation projects.

The new Strategic Prioritization program was fully implemented in 2015. Projects scheduled for construction before then will proceed as scheduled under the current Equity Formula. Projects slated for construction after that time will be ranked and programmed according to the new formula. The new Strategic Mobility Formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs.

All independent bicycle and pedestrian projects are placed in the "Division Needs" category, and are currently ranked based on 50% data (safety, access, demand, connectivity, and cost effectiveness) and 50% local input. ***See Appendix B for more information.***

RESIDENTIAL AND COMMERCIAL DEVELOPMENT

The construction of sidewalks, bicycle facilities, trails, and safe crosswalks should be required during development. Construction of facilities that corresponds with site construction is more cost-effective than retrofitting. In commercial development, emphasis should also be focused on safe pedestrian and bicyclist access into, within, and through large parking lots. This ensures the future growth of the pedestrian and bicycle networks and the development of safe communities.

LOCAL ROADWAY CONSTRUCTION OR RECONSTRUCTION

Pedestrians and bicyclists should be accommodated any time a new road is constructed or an existing road is reconstructed. In the longer-term, all new roads with moderate to heavy motor vehicle traffic should have sidewalks, bicycle facilities, and safe intersections. However, sidepaths can be an acceptable solution when a road has few driveways and high-speed, high-volume traffic.

Also, case law surrounding the Americans with Disabilities Act (ADA) has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not yet exist. The Department of Justice and the Federal Highway Administration has guidance on the Title II of the ADA requirement to provide curb ramps when streets, roads, or highways are altered through resurfacing. More information is available on the following website:
http://www.ada.gov/doj-fhwa-ta.htm.

REPAVING

Repaving projects provide a clean slate for revising pavement markings. When a road is repaved, the roadway should be restriped to create narrower lanes and provide space for bike lanes and shoulders, where feasible. In addition, if the spaces on the sides of non-curb and gutter streets have relatively level grades and few obstructions, the total pavement width can be widened to include paved shoulders.

NCDOT provides three-year plans that include resurfacing schedules. Please see the following website - https://connect.ncdot.gov/resources/Asset-Management/HMIP-Plans/Pages/HMIP.aspx. Hearne Road and Gene Road are local examples of recent resurfacing projects that included the addition of pavement width.

According to the 2018-20 HMIP Plans, Rogers Road, Pauls Crossing Road (both west side of North Stanly), Old Whitney Road, and Yadkin Brick Road are schedule for improvements. See page 65 in Chapter 3 for recommendations along these corridors.

BRIDGE CONSTRUCTION OR REPLACEMENT

Provisions should always be made to include a walking and bicycling facility as a part of vehicular bridges. All new or replacement bridges should accommodate two-way travel for all users. Even though bridge construction and replacement does not occur regularly, it is important to consider these policies for long-term bicycle and pedestrian planning.

EASEMENTS

The municipalities should explore opportunities to revise existing easements to accommodate public access greenway trail facilities. Adopting policy language to allow for public access for trail users, as a matter of right, on all new sewer and utility easements would greatly enhance the development of greenways. Sewer easements are very commonly used for this purpose, offering cleared and graded corridors that easily accommodate trails. This approach avoids the difficulties associated with acquiring land, and it better utilizes the Town's resources.

MAINTENANCE

The physical condition of bicycling and walking facilities such as bike lanes, pavement markings, paved shoulders, dedicated shared-use paths, and sidewalks, is an important consideration when residents consider choosing walking or bicycling for transportation or other uses.

Developing a maintenance management plan will be useful in ensuring that responsibility is assigned appropriately and that regular maintenance is done. The following recommendations provide a menu of considerations that can help guide facility maintenance in North Stanly.

Because the network 1) traverses multiple municipal boundaries and unincorporated Stanly County, 2) includes a combination of street, stream, parks, and other properties, and 3) includes both on-road and off-road treatments, the North Stanly communities and Stanly County will need to continue to be engaged and coordinated in ongoing operations and maintenance.

Bicycle and pedestrian facilities should be viewed and maintained as a public resource, serving generations to come. The following guiding principles will help assure the preservation of a first class system:

- Good maintenance begins with sound planning and design.
- Foremost, protect life, property and the environment.
- Promote and maintain a quality outdoor recreation and transportation experience.
- Develop a management plan that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals.
- Maintain quality control and conduct regular inspections.
- Include field crews, police and fire/rescue personnel in both the design review and ongoing management process.
- Maintain an effective, responsive public feedback system and promote public participation.
- Be a good neighbor to adjacent properties.
- Operate a cost-effective program with sustainable funding sources.

ROUTINE MAINTENANCE

Routine maintenance refers to the day-to-day regimen of litter pick-up, trash and debris removal, weed and dust control, sweeping, sign replacement, tree and shrub trimming, and other regularly scheduled activities. Routine maintenance also includes minor repairs and replacements such as fixing cracks and potholes or repairing a broken hand railing.

ROUTINE MAINTENANCE TASKS

Certain tasks should be performed on a regular basis to keep all network facilities in good, usable condition. Maintenance tasks should be conducted more frequently for facilities where use is the most concentrated. The frequency of required maintenance tasks should be established as new facilities are implemented and should be reviewed and updated annually to reflect any changes in usage, safety issues, etc.

Basic housekeeping of facilities will ensure that the network is clean and functional and will also improve the life of each facility. Volunteer efforts, such as the ongoing efforts of Friends of North Stanly Trails and Parks should be utilized in managing the Falcon Trail, partnering with other local groups and agencies where possible.

When on-street facilities, such as a bicycle lane or shoulder, become filled with debris, bicyclists are forced into the motor vehicle lane. Poor maintenance can contribute to crashes and deter potential bicyclists unwilling to risk flat tires and skidding on roadways.

Periodic checks should be made of the on-street bikeway network with the majority of work being confined to spot fixes and damage response. Street sweeping of on-street facilities will need to be coordinated with the management agency's roadway maintenance program to ensure that the roadway is cleared curb to curb.

- Establish a seasonal sweeping schedule that prioritizes roadways with major bicycle routes.
- Sweep bikeways whenever there is an accumulation of debris, and at least in the spring to clean debris left over from winter weather.
- In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.
- Pave gravel driveway approaches to minimize loose gravel on paved roadway shoulders.

To maintain a high quality network, regular attention should be given to the surrounding landscape, both natural and man-made. This not only improves the aesthetic quality of the network but also improves the users' sense of safety, as well. Vegetation management tasks include the following:

- Tree and shrub trimming and pruning
- Mowing of vegetation
- Mulching and edging
- Invasive species control

REMEDIAL MAINTENANCE

Remedial Maintenance refers to correcting significant defects in the network, as well as repairing, replacing or restoring major components that have been destroyed, damaged, or significantly deteriorated from normal usage and old age. Some items ("minor repairs") may occur on a five to ten year cycle such as repainting, seal coating asphalt pavement or replacing signage. Major reconstruction items will occur over a longer period or after an event such as a flood. Examples of major reconstruction remedial maintenance include stabilization of a severely eroded hillside, repaving a trail surface or a street used for biking, or replacing a footbridge. Remedial maintenance should be part of a long-term capital improvement plan.

Some repairs are minor, such as repainting or resurfacing bicycle lanes and can be done in conjunction with other capital projects, such as repaving the adjacent street.

General remedial tasks for off-street facilities can include:

- Replenish gravel, mulch, or other materials
- Repaint/restripe/stain
- Repave/seal
- Replace asphalt or concrete
- Remove encroaching debris along paved trail/sidewalk edges
- Regrade to prevent or eliminate low spots and drainage issues
- Add culverts, bridges, boardwalks, retaining walls, etc. to prevent or eliminate drainage/erosion issues
- Reroute trail, if necessary, to avoid environmentally sensitive or overused areas and any safety issues

For on-street facilities, pavement overlays represent good opportunities to improve conditions, if done carefully. A ridge should not be left in the area where bicyclists ride (this occurs where an overlay extends part-way into a shoulder bikeway or bike lane). Overlay projects also offer opportunities to widen a roadway or to re-stripe a roadway with bike lanes.

Compaction is an important issue after trenches and other construction holes are filled. Uneven settlement after trenching can affect the roadway surface nearest the curb where bicycles travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks.

General remedial tasks for on-street facilities can include:

- Maintain a smooth pothole-free surface.
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- During chip seal maintenance projects, if the pavement condition of the bike lane is

satisfactory, it may be appropriate to chip seal the travel lanes only. However, use caution when doing this so as not to create an unacceptable ridge between the bike lane and travel lane.

» Ensure that inlet grates, and manhole and valve covers are within 1/4 inch of the finished pavement surface and are made or treated with slip-resistant materials.

FACILITY REPAIR OR REPLACEMENT

All facilities will require repair or replacement at one time or another. The time between observation and repair/replacement will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the user, and whether the needed repair can be performed by an in-house maintenance crew or if it is so extensive that the needed repair must be done by outside entities or replaced completely.

The table below depicts the average life of certain types of materials used for walking/biking facilities. The repair or replacement of existing facilities should be reflected in a projected budget for future maintenance costs.

LONGEVITY OF FACILITIES

» Mulch	2-3 years
» Granular Stone	7-10 years
» Asphalt	7-15 years
» Concrete	20+ years
» Boardwalk	7-10 years
» Bridge/Underpass	100+ years

SEASONAL MAINTENANCE

Seasonal tasks should be performed as needed. When conditions cannot be improved to provide for safe use, the facility should be closed to prevent the risk of injury to facility users. Designated maintenance crews would remove leaf debris, snow, and ice from all network facilities as soon as possible. Leaf debris is potentially hazardous when wet and special attention should be given to facilities with heavier usage. Ice control and removal of ice build-up is a continual factor because of the freeze-thaw cycle. Ice control is most important on grade changes and curves. Ice can be removed or gravel/ice melt applied. After the ice is gone, leftover gravel should be swept as soon as possible.

HABITAT ENHANCEMENT & NATIVE SPECIES

The presence/absence of vegetation and the type of vegetation present along walking/biking trails affects habitat quality, the effectiveness as a wildlife corridor, ecological sustainability, and the aesthetic experience for the trail user. Trails are more effective at providing wildlife habitat when they have trees and shrubs present. Planting native vegetation along walking/biking trails can enhance the trail user's feeling of "getting back to nature." However, planting woody vegetation may not be an option on trails whose alignments are on sewer or power line rights-of-way based on planting depth requirements. In locations where trees and shrubs are lacking and can be planted, native species are the most ecologically sustainable choice. As a group, native species require less maintenance than horticultural plantings and often provide wildlife with a food source.

The following activities and tasks should be utilized to enhance and control wildlife habitats:

» Plant vegetation, such as trees and shrubs, using native species whenever possible; consider prohibiting the introduction of non-native plants altogether

» Take preventative measures to protect landscape features from wildlife, such as installing fencing around sensitive or newly planted materials

» Use herbicides sparingly, to eliminate problem plant species only when necessary

» Deter interaction between facility users and facility inhabitants, such as feeding the wildlife, etc.

Falcon Trail Signage on Pfeiffer University Campus

NORTH STANLY
BICYCLE & PEDESTRIAN PLAN

Prepared for the Village of Misenheimer, Town of Richfield, and Town of New London, North Carolina & NCDOT
Prepared by Alta Planning + Design

2018

APPENDIX A:
DESIGN RESOURCES

DESIGN GUIDELINE RESOURCES

Planners and project designers should refer to these standards and guidelines in developing the infrastructure projects recommended by this plan. The following resources are from the NCDOT website, for *"Bicycle & Pedestrian Project Development & Design Guidance",* located here:

https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx

All resources listed below are linked through the web page listed above, retrieved in May 2018.

NATIONAL GUIDELINES

American Association of State Highway and Transportation Officials (AASHTO):
- Guide for the Development of Bicycle Facilities
- Guide for the Planning, Design, and Operation of Pedestrian Facilities

The Federal Highway Administration (FHWA):
- Accessibility Guidance
- Design Guidance
- Facility Design
- Facility Operations

Manual on Uniform Traffic Control Devices (MUTCD):
- Part 4E: Pedestrian Control Features
- Part 7: Traffic Controls for School Areas
- Part 9: Traffic Controls for Bicycle Facilities

National Association of City Transportation Officials (NACTO):
- Urban Bikeway Design Guide
- Urban Street Design Guide

Safe Routes to School (SRTS) Non-Infrastructure:
- National Center for Safe Routes to School
- National Partnership for Safe Routes to School

US Access board:
- ABA Accessibility Standards
- ADA Accessibility Guidelines
- ADA Accessibility Standards
- Public Rights-of-Way, Streets & Sidewalks, and Shared Use Paths

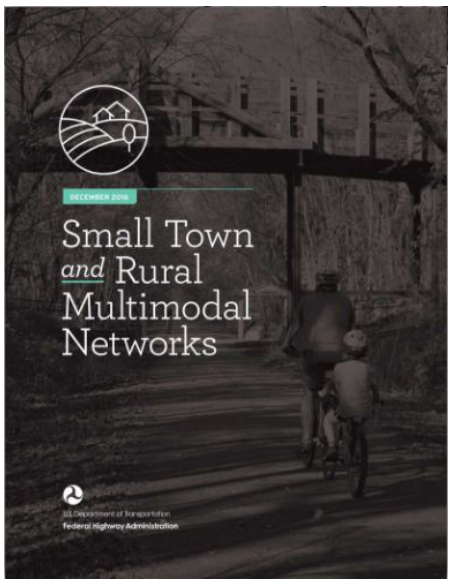
NORTH CAROLINA GUIDELINES

Manual on Uniform Traffic Control Devices (MUTCD):
- 2009 NC Supplement to MUTCD
- Part 7. Traffic Controls for School Areas
- Part 9: Traffic Controls for Bicycle Facilities

North Carolina Department of Transportation (NCDOT):
- WalkBikeNC: The Statewide Pedestrian and Bicycle Plan
- Glossary of North Carolina Terminology for Active Transportation
- NCDOT Complete Streets, including the Complete Streets Planning and Design Guidelines
- Evaluating Temporary Accommodations for Pedestrians
- NC Local Programs Handbook
- Traditional Neighborhood Development Guidelines

Greenway Construction Standards:
- Greenway Standards Summary Memo
- Design Issues Summary
- Greenway Design Guidelines Value Engineering Report
- Summary of Recommendations
- Minimum Pavement Design Recommendations for Greenways
- Steps to Construct a Greenway or Shared-Use Trail

Route Signing & Mapping
- Bike Maps and Routes
- Share the Road Initiative
- How to Select Routes
- NCDOT Bicycle Route Signing & Mapping Program



The FHWA Small Town and Rural Multimodal Networks guide is referenced throughout this document and is linked through the NCDOT main webpage above. The companion website for the Small Town and Rural Multimodal Networks guide is www.ruraldesignguide.com

APPENDIX B:
FUNDING RESOURCES

OVERVIEW

Multiple approaches should be taken to support bicycle and pedestrian facility development and programming. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall system. Dedicated local funding sources will be important for the implementation of this plan.

Local government funds for bicycle and pedestrian facilities should be set aside every year, even if only for a small amount. Small amounts of local funding can be matched to outside funding sources. A variety of local, state, federal, and non-governmental options and sources exist and should be pursued.

The following section identifies federal, state, local and private/non-profit foundation sources of funding for planning, design, implementation and maintenance of bicycle and pedestrian infrastructure. The descriptions are intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

FEDERAL FUNDING SOURCES

Federal funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations. Federal funding typically requires a local match of five percent to 50 percent, but there are sometimes exceptions. The following is a list of possible Federal funding sources that could be used to support the construction of bicycle and pedestrian facilities.

FIXING AMERICA'S SURFACE TRANSPORTATION (FAST ACT)

In December 2015, President Obama signed the FAST Act into law, which replaces the previous Moving Ahead for Progress in the Twenty-First Century (MAP-21). The Act provides a long-term funding source of $305 billion for surface transportation and planning for FY 2016-2020. Overall, the FAST Act retains eligibility for larger programs - Transportation Investments Generating Economic Recovery (TIGER - Now called BUILD), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), and Highway Safety Improvement Program (HSIP). The FAST Act maintains the federal government's focus on safety, preserves the established structure of various highway-related programs, streamlines project delivery, and provides a dedicated funding source for freight projects.

In North Carolina, federal monies are administered through the North Carolina Department of Transportation (NCDOT) and Metropolitan / Rural Planning Organizations (MPOs/RPOs). Most, but not all, of these programs are focused on transportation rather than recreation, with an emphasis on reducing auto trips and providing intermodal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. Most FAST ACT funds are available through the STI process.

For more information: https://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.cfm

TRANSPORTATION ALTERNATIVES (TA)

Transportation Alternatives (TA) is a funding source under the FAST Act that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). Funds are available through a competitive process. These funds may be used for a variety of pedestrian, bicycle, and streetscape projects. These include:

» SRTS programs - infrastructure and non-infrastructure programs.

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation, including sidewalks, bikeways, pedestrian and bicycle signals, traffic calming techniques, and lighting and other safety-related infrastructure
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, seniors, and individuals with disabilities
- Construction of rail-trails
- Recreational trails program

Eligible entities for TA funding include local governments, regional transportation authorities, transit agencies, natural resource or public land agencies, school districts or schools, tribal governments, and any other local or regional government entity with responsibility for oversight of transportation or recreational trails that the State determines to be eligible.

The FAST Act provides $84 million for the Recreational Trails Program. Funding is prorated among the 50 states and Washington D.C. in proportion to the relative amount of off-highway recreational fuel tax that its residents paid. To administer the funding, states hold a statewide competitive process. The legislation stipulates that funds must conform to the distribution formula of 30% for motorized projects, 30% for non-motorized projects, and 40% for mixed used projects. Each state governor is given the opportunity to "opt out" of the RTP.

For more information: https://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.cfm

SURFACE TRANSPORTATION BLOCK GRANT (STBG) PROGRAM

The FAST Act converts the Surface Transportation Program into the Surface Transportation Block Grant (STBG) program. This program is among the most flexible eligibilities among all Federal-aid and highway programs. The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Safe Routes to School programs, congestion pricing projects and strategies, and recreational trails projects are other eligible activities. Under the FAST Act, a State may use STBG funds to create and operate a State office to help design, implement, and oversee public-private partnerships eligible to receive Federal highway or transit funding. In general, projects cannot be located on local roads or rural minor collectors. However, there are exceptions. These exceptions include recreational trails, pedestrian and bicycle projects, and Safe Routes to School programs.

For more information: https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

HSIP provides $2.2 - $2.4 billion nationally (FY 2016-2020) for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands. The HSIP requirements prior to the enactment of the FAST Act are still applicable, including the need for a comprehensive, data-driven State Highway Safety Plan (SHSP) that defines the State's safety goals and describes strategies to improve safety.

HSIP funds must be used for safety projects that are consistent with the State's SHSP and that correct or improve a hazardous road location or features to address a highway safety problem. Most eligible activities are infrastructure-related. Bicycle and pedestrian safety improvements,

traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. Examples include pedestrian hybrid beacons, medians, and pedestrian crossing islands. Workforce development, training, and education activities are other eligible uses of HSIP funds.

For more information: http://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm

STATEWIDE AND NON-METROPOLITAN PLANNING

The FAST Act continues funding for statewide and nonmetropolitan planning as part of a 2 percent set-aside for planning and research activities from each State's apportionments of five core programs: National Highway Performance Program, Surface Transportation Block Grant Program (STBG), Highway Safety Improvement Program, Congestion Mitigation and Air Quality Improvement Program, and National Highway Freight Program.

The FAST Act continues to require long-range statewide transportation plans and statewide transportation improvement programs (STIPs) to provide for the development and integrated management and operation of transportation systems and facilities that enable an intermodal transportation system, including pedestrian and bicycle facilities.

For more information: https://www.fhwa.dot.gov/fastact/factsheets/statewideplanningfs.cfm

SAFE ROUTES TO SCHOOL (SRTS) PROGRAM

SRTS enables and encourages children in grades K-8 to walk and bike to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Funding is administered by State Departments of Transportation (DOTs). Eligible recipients are state, local, and regional agencies as well as nonprofit organizations. Project sponsors may be school or community based groups. Around 10-30% of each state's funding is to be spent on non-infrastructure activities, such as encouragement programs, additional law enforcement activities, and educational curricula.

Infrastructure-related projects improve the ability of students to walk or bike to and from school. Types of projects include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bike crossing improvements, bicycle facilities, pedestrian facilities, and secure bike parking.

For more information: http://www.fhwa.dot.gov/environment/safe_routes_to_school/guidance/#toc123542170

OTHER FEDERAL FUNDING SOURCES

BUILD TRANSPORTATION DISCRETIONARY GRANT PROGRAM

The Consolidated Appropriations Act, 2018 appropriated $1.5 billion, available for obligation through September 30, 2020, for National Infrastructure Investments previously known as TIGER grants, and now renamed BUILD Transportation grants. As with previous rounds of TIGER, funds for the FY2018 BUILD Transportation program are to be awarded on a competitive basis for projects that will have a significant local or regional impact.

Funding provided under National Infrastructure Investments have supported capital projects which repair bridges or improve infrastructure to a state of good repair; projects that implement safety improvements to reduce fatalities and serious injuries, including improving grade crossings or providing shorter or more direct access to critical health services; projects that connect communities and people to jobs, services, and education; and, projects that anchor economic revitalization and job growth

in communities. DOT intends to award a greater share of FY2018 BUILD Transportation grants to projects located in rural areas that align well with the selection criteria than to such projects in urban areas.

For more information: https://www.transportation.gov/BUILDgrants/2018-build-application-faqs

FEDERAL TRANSIT ADMINISTRATION ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES

This program aims to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options. This program can be used for capital expenses that support transportation and non-emergency medical transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. States and designated recipients are direct recipients. Eligible sub-recipients include nonprofit organizations, states or local governments, or operators of public transportation. Types of eligible projects include transit-related information technology systems, building an accessible path to a bus stop (curb cuts, sidewalks, accessible pedestrian signals), and improving signage.

For more information: https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310

ECONOMIC DEVELOPMENT ADMINISTRATION

Under Economic Development Administration's (EDA) Public Works and Economic Adjustment Assistance programs, grant applications are accepted for projects that promote economic development. State and local entities may apply for funding for projects that address a wide range of economic challenges. Under this program, Implementation Grants support infrastructure improvements, including site acquisition, site preparation, construction, and rehabilitation of facilities. Selection criteria emphasize projects that are able to start quickly, create jobs faster, and that will enable the community or region to become more economically prosperous. Application deadlines are typically in March and June.

For more information: https://www.eda.gov/funding-opportunities/index.htm

FEDERAL LANDS TRANSPORTATION PROGRAM (FLTP)

The FLTP funds projects that improve transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), USDA Forest Service, Bureau of Land Management (BLM), U.S. Army Corps of Engineers, Bureau of Reclamation, and independent Federal agencies with land and natural resource management responsibilities. FLTP funds are for available for program administration, transportation planning, research, engineering, rehabilitation, construction, and restoration of Federal Lands Transportation Facilities. Transportation projects that are on the public network that provide access to, adjacent to, or through Federal lands are also eligible for funding. Under the FAST Act, $335 - $375 million has been allocated to the program per fiscal year from 2016 - 2020.

For more information: https://flh.fhwa.dot.gov/programs/fltp/documents/FAST%20FLTP%20fact%20sheet.pdf

PARTNERSHIP FOR SUSTAINABLE COMMUNITIES

Founded in 2009, the Partnership for Sustainable Communities (PSC) is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department

of Transportation (USDOT). The partnership aims to "improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide."

PSC is based on six livability principles, one of which explicitly addresses the need for alternative transportation options. ("Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health"). PSC is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including both TIGER I and TIGER II grants). North Carolina jurisdictions should track PSC communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrow in scope. PSC livability principles include: provide more transportation choices, promote equitable, affordable housing, enhance economic competitiveness, support existing communities, coordinate and leverage federal policies and investment, and value communities and neighborhoods.

For more information: https://www.hud.gov/hudprograms/sci

FEDERAL LAND AND WATER CONSERVATION FUND

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Department of Environment and Natural Resources as a grant program for states and local governments. Maximum annual grant awards for county governments, incorporated municipalities, public authorities, and federally recognized Indian tribes are $250,000. The local match may be provided with in-kind services or cash.

For more information: https://www.nps.gov/subjects/lwcf/stateside.htm

RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program that provides technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program only provides planning assistance; there are no implementation funds available. Projects are prioritized for assistance based on criteria, including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. Project applicants may be state and local agencies, tribes, nonprofit organizations, or citizen groups. National parks and other federal agencies may apply in partnership with other local organizations. This program may benefit trail development in North Carolina indirectly through technical assistance, particularly for community organizations, but is not a capital funding source. Annual application deadline is August 1st.

For more information: https://www.nps.gov/orgs/rtca/index.htm

ENVIRONMENTAL CONTAMINATION CLEANUP FUNDING SOURCES

EPA's Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. EPA's Brownfields Program collaborates with other

EPA programs, other federal partners, and state agencies to identify and leverage more resources for brownfields activities. The EPA provides assessment grants to recipients to characterize, assess, and conduct community involvement related to brownfields sites. They also provide Area-wide planning grants (AWP) which provides communities with funds to research, plan, and develop implementation strategies for areas affected by one or more brownfields.

For more information: https://www.epa.gov/brownfields/types-brownfields-grant-funding

NATIONAL FISH AND WILDLIFE FOUNDATION: FIVE STAR & URBAN WATERS RESTORATION GRANT PROGRAM

The Five Star & Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, stormwater management as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support. The program focuses on five priorities: on-the-ground restoration, community partnerships, environmental outreach, education, and training, measurable results, and sustainability. Eligible applicants include nonprofit organizations, state government agencies, local governments, municipal governments, tribes, and educational institutions. Projects are required to meet or exceed a 1:1 match to be competitive.

For more information: http://www.nfwf.org/fivestar/Pages/home.aspx

STATE FUNDING SOURCES

There are multiple sources for state funding of bicycle and pedestrian transportation projects. However, state transportation funds cannot be used to match federally funded transportation projects, according to a law passed by the North Carolina Legislature.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STRATEGIC TRANSPORTATION INVESTMENTS (STI)

The NCDOT's State Transportation Improvement Program is based on the Strategic Transportation Investments Bill, signed into law in 2013. The Strategic Transportation Investments (STI) Initiative includes the Strategic Mobility Formula, a way to fund and prioritize transportation projects.

The Strategic Mobility Formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs.
All independent bicycle and pedestrian projects are placed in the "Division Needs" category, and are currently ranked based on 50% data (safety, access, demand, connectivity, and cost effectiveness) and 50% local input, with a breakdown as follows:

Safety 15%

- Definition: Projects or improvements where bicycle or pedestrian accommodations are non-existent or inadequate for safety of users
- How it's measured: Crash history, posted speed limits, and estimated safety benefit
- Calculation:
  - Bicycle/pedestrian crashes along the corridor within last five years: 40% weight
  - Posted speed limits, with higher points for higher limits: 40% weight
  - Project safety benefit, measured by each specific improvement: 20% weight

Access 10%

- Definition: Destinations that draw or generate high volumes of bikes/pedestrians
- How it's measured: Type of and distance to destination

Demand 10%

» Definition: Projects serving large resident or employee user groups
» How its measured: # of households and employees per square mile within 1.5 mile bicycle or 0.5 mile pedestrian facility + factor for unoccupied housing units (second homes)

Connectivity 10%

» Definition: Measure impact of project on reliability and quality of network
» How it's measured: Creates score per each Strategic Transportation Investments based on degree of bike/ped separation from roadway and connectivity to similar or better project type

Cost Effectiveness 5%

» Definition: Ratio of calculated user benefit divided by NCDOT project cost
» How it's measured: Safety + Demand + Access + Connectivity)/Estimated Project Cost to NCDOT

Local Input 50%

» Definition: Input from MPO/RPOs and NCDOT Divisions, which comes in the form points assigned to projects.
» How it is measured: Base points + points for population size. A given project is more likely to get funded if it is assigned base points from both the MPO/RPO and the Division, making the need for communicating the importance of projects to these groups critical. Further, projects that have a local match will score higher.

Additional bicycle and pedestrian project requirements:

» Federal funding typically requires a 20% non-federal match
» State law prohibits state match for bicycle and pedestrian projects (except for Powell Bill)
» Limited number of project submittals per MPO/RPO/Division
» Minimum project cost requirement is $100,000
» Bike/Ped projects typically include: bicycle lanes, multi-use path/greenway, paved shoulders, sidewalks, pedestrian signals, SRTS infrastructure projects, and other streetscape/multi-site improvements (such as median refuge, signage, etc.)

These rankings largely determine which projects will be included in NCDOT's State Transportation Improvement Program (STIP). The STIP is a federally mandated transportation planning document that details transportation planning improvements prioritized by the stakeholders for inclusion in NCDOT's Work Program. The STIP is updated every 2 years. The STIP contains funding information for various transportation divisions of NCDOT, including, highways, rail, bicycle and pedestrian, public transportation and aviation. A project does not have to be fully funded to be in the STIP.

For more information on STIP: https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/default.aspx

INCIDENTAL PROJECTS

Bicycle and Pedestrian accommodations such as; bike lanes, wide paved shoulders, sidewalks, intersection improvements, bicycle and pedestrian safe bridge design, etc. are frequently included as "incidental" features of larger highway/roadway projects. This is increasingly common with the adoption of NCDOT's "Complete Streets" Policy.

In addition, bicycle safe drainage grates and handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds, and usually with a local match. On-road bicycle accommodations, if warranted, typically do not require a local match.

"Incidental Projects" are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal transportation system. Having a local bicycle or pedestrian plan is important, because it allows NCDOT to identify where bike and pedestrian improvements are needed, and can be included as part of highway or street improvement project. It also helps local government identify what their priorities are and how they might be able to pay for these projects. Under "Complete Streets" local governments may be responsible for a portion of the costs for bicycle and pedestrian projects. The cost share breakdown is based on population size as follows:

- 100,000 = 50% local match
- 50,000 - 100,000 = 40% local match
- 10,000 - 50,000 = 30% local match
- 10,000 = 20% local match

For more information: https://connect.ncdot.gov/projects/research/Pages/ProjDetails.aspx?ProjectID=2014-06

SPOT SAFETY PROGRAM

The Spot Safety Program is a state-funded public safety investment and improvement program that provides highly effective low-cost safety improvements for intersections and sections of North Carolina's 79,000 miles of state maintained roads in all 100 counties of North Carolina. The Spot Safety Program is used to develop smaller improvement projects to address safety, potential safety, and operational issues. The program is funded with state funds and currently receives approximately $9 million per state fiscal year. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is $250,000.

The Spot Safety Program targets hazardous locations for expedited low cost safety improvements such as traffic signals, turn lanes, improved shoulders, intersection upgrades, positive guidance enhancements (rumble strips, improved channelization, raised pavement markers, long life highly visible pavement markings), improved warning and regulatory signing, roadside safety improvements, school safety improvements, and safety appurtenances (like guardrail and crash attenuators).

A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include, but are not limited to, the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest.

For more information: https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

HIGHWAY HAZARD ELIMINATION PROGRAM

The Hazard Elimination Program is used to develop larger improvement projects to address safety and potential safety issues. The program is funded with 90 percent federal funds and 10 percent state funds. The cost of Hazard Elimination Program projects typically ranges between $400,000 and $1 million. A Safety Oversight Committee (SOC) reviews and recommends Hazard Elimination projects to the Board of Transportation (BOT) for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's State Transportation Improvement Program (STIP).

For more information: https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

GOVERNOR'S HIGHWAY SAFETY PROGRAM

The Governor's Highway Safety Program (GHSP) funds safety improvement projects on state highways throughout North Carolina. All funding is performance-based. Substantial progress in reducing crashes, injuries, and fatalities is required as a condition of continued funding. Permitted safety projects include checking station equipment, traffic safety equipment, and BikeSafe NC equipment. However, funding is not allowed for speed display signs. This funding source is considered to be "seed money" to get programs started. The grantee is expected to provide a portion of the project costs and is expected to continue the program after GHSP funding ends. Applications must include county level crash data. Local governments, including county governments and municipal governments, are eligible to apply.

For more information: https://www.ncdot.gov/initiatives-policies/safety/ghsp/Pages/default.aspx

SAFE ROUTES TO SCHOOL (SRTS)

SRTS is managed by NCDOT, but is federally funded; See Federal Funding Sources above for more information.

COMMUNITY DEVELOPMENT BLOCK GRANT FUNDS

Community Development Block Grant (CDBG) funds are available to local municipal or county governments that qualify for community development projects that provide decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low and moderate income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. CDBG funds may be used for activities which include, but are not limited to: acquisition of real property, construction of public facilities and improvements, such as streets, neighborhood centers, and conversion of school buildings for eligible purposes, and activities related to energy conservation.

For more information: https://www.hudexchange.info/programs/cdbg-entitlement/cdbg-entitlement-program-eligibility-requirements/

THE NORTH CAROLINA DIVISION OF PARKS AND RECREATION – RECREATIONAL TRAILS AND ADOPT-A-TRAIL GRANTS

The Adopt-a-Trail Grant Program (AAT) awards $108,000 annually to government agencies, nonprofit organizations and private trail groups for trail projects. Funding from the federal Recreational Trails Program (RTP), which is used for renovating or constructing trails and greenways, is allocated to states. The North Carolina Division of Parks and Recreation and the State Trails Program manages these funds with a goal of helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking, and horseback riding to river trails and off-highway vehicle trails. Grants are available to governmental agencies and nonprofit organizations. The maximum grant amount is $100,000 and requires a 25% match of RTP funds received. Permissible uses include:

- New trail or greenway construction
- Trail or greenway renovation
- Approved trail or greenway facilities
- Trail head/ trail markers
- Purchase of tools to construct and/or renovate trails/greenways
- Land acquisition for trail purposes
- Planning, legal, environmental, and permitting costs - up to 10% of grant amount
- Combination of the above

For more information: http://www.ncparks.gov/more-about-us/grants/trail-grants/recreational-trails-program

NC PARKS AND RECREATION TRUST FUND (PARTF)

The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities, and public authorities, as defined by G.S. 159-7, are eligible applicants. A local government can request a maximum of $500,000 with each application. An applicant must match the grant dollar-for-dollar, 50 percent of the total cost of the project, and may contribute more than 50 percent. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match. Property acquired with PARTF funds must be dedicated for public recreational use.

For more information: http://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/eligibility

CLEAN WATER MANAGEMENT TRUST FUND

The Clean Water Management Trust Fund (CWMTF) is available to any state agency, local government, or non-profit organization whose primary purpose is the conservation, preservation, and restoration of North Carolina's environmental and natural resources. Grant assistance is provided to conservation projects that:

- enhance or restore degraded waters;
- protect unpolluted waters, and/or
- contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits;
- provide buffers around military bases to protect the military mission;
- acquire land that represents the ecological diversity of North Carolina; and
- acquire land that contributes to the development of a balanced State program of historic properties.

For more information: http://www.cwmtf.net/#appmain.htm

DUKE ENERGY WATER RESOURCES FUND

Duke Energy is investing $10 million in a fund for projects that benefit waterways in the Carolinas. The fund supports science-based, research-supported projects and programs that provide direct benefit to at least one of the following focus areas:

- Improve water quality, quantity and conservation;
- Enhance fish and wildlife habitats;
- Expand public use and access to waterways; and
- Increase citizens' awareness about their roles in protecting these resources.

Applications are open to nonprofit organizations and local government agencies. Funding decisions are made twice a year. Local and regional government agencies could consider this resource for proposed greenways across the region.

For more information: http://www.nccommunityfoundation.org/page/other-grant-opportunities/duke-energy-water-resource-fund-grants/applying-to-the-duke-energy-water-resources-fund

URBAN AND COMMUNITY FORESTRY GRANT

The North Carolina Division of Forest Resources Urban and Community Forestry grant can provide funding for a variety of projects that will help plan and establish street trees as well as trees for urban open space. The goal is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to more effective and efficient management of urban and community forests. Grant requests should range between $1,000 and $15,000 and must be matched equally with non-federal funds. Grant funds may be awarded to any unit of local or state government, public educational institutions, approved non-profit 501(c)(3) organizations, and other tax-exempt organizations. First time municipal applicant and municipalities seeking Tree City USA status are given priority for funding. Grant applications are due by March 31st of each year and recipients are notified by mid-July.

For more about Tree City USA status, including application instructions, visit: http://ncforestservice.gov/Urban/urban_grant_overview.htm

LOCAL GOVERNMENT FUNDING SOURCES

Municipalities often plan for the funding of pedestrian and bicycle facilities or improvements through development of Capital Improvement Projects (CIP) or occasionally, through their annual Operating Budgets. In Raleigh, for example, the greenway system has been developed over many years through an annual dedicated source of funding that has ranged from $100,000 to $500,000 and administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each category is described below. A variety of possible funding options available to North Carolina jurisdictions for implementing pedestrian and bicycle projects are also described below. However, many will require specific local action as a means of establishing a program if it's not already in place.

POWELL BILL FUNDS

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as outlined by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities. It may also be used for planning, construction, and maintenance of bikeways or sidewalks within municipal limits or within the area of a metropolitan planning organization or rural planning organization. Beginning July 1, 2015, under the Strategic Transportation Investments initiative, Powell Bill funds may no longer be used to provide a match for federal transportation funds such as Transportation Alternatives. Certified Statement, street listing, add/delete sheet and certified map from all municipalities are due between July 1st and July 21st of each year. Additional documentation is due shortly afterwards.

For more information: https://connect.ncdot.gov/municipalities/State-Street-Aid/Pages/default.aspx

CAPITAL RESERVE FUND

Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants, and donations for the specified use.

CAPITAL PROJECT ORDINANCES

Municipalities can pass Capital Project Ordinances that are project specific. The ordinance identifies and makes appropriations for the project.

LOCAL IMPROVEMENT DISTRICT (LID)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks, or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

MUNICIPAL SERVICE DISTRICT

Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the town-wide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts, and can include projects such as street, sidewalk, or bikeway improvements within the downtown taxing district.

TAX INCREMENT FINANCING

Project Development Financing bonds, also known as Tax Increment Financing (TIF) is a relatively new tool in North Carolina, allowing localities to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Streets, streetscapes, and sidewalk improvements are specifically authorized for TIF funding in North Carolina. Tax Increment Financing typically occurs within designated development financing districts that meet certain economic criteria that are approved by a local governing body. TIF funds are generally spent inside the boundaries of the TIF district, but they can also be spent outside the district if necessary to encourage development within it. Although larger cities use this type of financing more often, Woodfin, NC is an example of a small town that has used this type of financing.

MUNICIPAL VEHICLE TAX

NCGS 20-97 allows municipalities to establish a vehicle fee/tax and a percentage of funding can be used for maintaining, repairing, constructing, reconstructing, widening, or improving public streets in the city or town that do not form a part of the State highway system.

OTHER LOCAL FUNDING OPTIONS

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Installment purchase financing
- In-lieu-of fees
- Partnerships

PRIVATE AND NONPROFIT FUNDING SOURCES

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are examples of private funding opportunities.

FUNDING FOR TRAIL DEVELOPMENT

CAROLINA THREAD TRAIL

The Carolina Thread Trail accepts grant applications for implementation projects from communities that have adopted Carolina Thread Trail master plans. The Thread Trail accepts grant applications twice per year. Submission deadlines for 2018 are: April 27 and October 19. The Carolina Thread Trail has been a key resource in support of the Falcon Trail/Carolina Thread Trail through North Stanly.

For more information: http://www.carolinathreadtrail.org/resources/funding-sources/

RAILS-TO-TRAILS CONSERVANCY

RTC launched a new grant program in 2015 to support organizations and local governments that are implementing projects to build and improve rail-trails. Under the Doppelt Family Trail Development Fund, RTC will award a total of $85,000 per year through a competitive process, which is then distributed among several qualifying projects. Eligible applicants include nonprofit organizations and state, regional, and local government agencies. Two types of grants are available - community support grants and project transformation grants. Around three to four community support grants are awarded each year, ranging from $5,000-$10,000 each. Community Support Grants support nonprofit organizations or “Friends of the Trail” groups that need funding to get trail development or trail improvement efforts off the ground. Each year, 1-2 Project Transformation Grants area awarded that range from $15,000-$50,000. The intention of these grants is to enable an organization to complete a significant trail development or improvement project. For both types of grants, applications

for projects on rail-trails and rails-with-trails are given preference, but rail-trail designation is not a requirement. The trail must serve multiple user types, such as bicycling, walking, and hiking, and must be considered a trail, greenway, or shared-use path.

For more information: http://www.railstotrails.org/our-work/doppelt-family-trail-development-fund/

NATIONAL TRAILS FUND

American Hiking Society created the National Trails Fund in 1998, which is the only privately supported national grants program that provides funding to grassroots organizations working toward establishing, protecting, and maintaining foot trails in America. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than $588,000 to 192 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $3,000 per project. Only 501(c)3 nonprofit organizations are eligible to apply. Applicants must be current members of American Hiking Society's Alliance of Hiking Organizations. Except for land acquisition projects, funded projects must be completed in a year. Multi-year projects may be considered if they are exceptional cases. Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

For more information: https://americanhiking.org/national-trails-fund/

AMERICAN GREENWAYS EASTMAN KODAK AWARDS

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($500 to $2,500) to stimulate the planning, design, and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, planning bike paths, and building trails. Grants are primarily awarded to local, regional, or statewide nonprofit organizations. Public agencies may apply but preference is given to community organizations. Grants are awarded based on the importance of the project to local greenway development efforts, demonstrated community support, extent to which the grant will result in matching funds, likelihood of tangible results, and the capacity of the organization to complete the project. Applications can be submitted from March 1st through June 1st of each calendar year.

For more information: http://www.rlch.org/funding/kodak-american-greenways-grants

FUNDING FOR CONSERVATION EFFORTS

NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation provides grants through more than 70 diverse conservation grant programs. One of the most relevant programs for bicycle and pedestrian projects is Acres for America. Funding priorities include conservation of bird, fish, plants and wildlife habitats, providing access for people to enjoy outdoors, and connecting existing protected lands. Federal, state, and local governement agencies, educational institutions, Native Amerian tribes, and nonprofit organizations may apply twice annually for matching grants. Due to the competitive nature of grant funding for Acres for America, all awarded grants require a minimum 1:1 match.

For more information: http://www.nfwf.org/whatwedo/grants/Pages/home.aspx

THE TRUST FOR PUBLIC LAND

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps acquire land and transfer it to public agencies, land trusts, or other groups that intend to conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

For more information: http://www.tpl.org

LAND FOR TOMORROW CAMPAIGN

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals, and community groups committed to securing support from the public and General Assembly for protecting land, water, and historic places. The campaign was successful in 2013 in asking the North Carolina General Assembly to continue to support conservation efforts in the state. The state budget bill includes about $50 million in funds for key conservation efforts in North Carolina. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests, sanctuaries for wildlife, land bordering streams, parks, and greenways, land that helps strengthen communities and promotes job growth, and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come.

For more information: http://www.land4tomorrow.org/

THE CONSERVATION ALLIANCE

The Conservation Alliance is a nonprofit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about $35,000 each. Since its inception in 1989, The Conservation Alliance has contributed $4,775,059 to environmental groups across the nation, saving over 34 million acres of wild lands.

The Conservation Alliance Funding Criteria:

- The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- All projects should be quantifiable, with specific goals, objectives, and action plans and should include a measure for evaluating success.
- The project should have a good chance for closure or significant measurable results over a fairly short term (within four years).

For more information: http://www.conservationalliance.com/grants/?yearly=2017

FUNDING FOR HEALTH AND ENVIRONMENTAL INITIATIVES

BLUE CROSS BLUE SHIELD OF NORTH CAROLINA FOUNDATION (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome-based approach to improve the health and well-being of residents. The Healthy Places grant concentrates on increased physical activity and active play through support of improved built environments such as

sidewalks and safe places to bike. Nonprofit organizations and government entities are eligible to apply. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms, and depending on the size of the non-profit, provide an audit. BCBS does not have a traditional grant cycle and announces grant opportunities on a periodic basis. Grants can range from small-dollar equipment grants to large, multi-year partnerships.

For more information: http://www.bcbsnc-foundation.org/faqs

DUKE ENERGY FOUNDATION

Funded by Duke Energy shareholders, this foundation makes charitable grants to nonprofit organizations and government agencies. Grant applicants must serve communities that are also served by Duke Energy. The grant program has several investment priorities, one of which is environment, and this is the most applicable to bicycle and pedestrian projects. Duke Energy supports initiatives that help protect and restore wildlife and natural resources, with a special focus on water and air. The application period is typically from July 1st to August 31st.

For more information: https://www.duke-energy.com/community/duke-energy-foundation

FUNDING FOR COMMUNITY DEVELOPMENT INITIATIVES

STANLY COUNTY COMMUNITY FOUNDATION & THE FOUNDATION FOR THE CAROLINAS: GIVE, GRANT, GROW STANLY COUNTY

Give, Grant, Grow Stanly is a partnership between Foundation For The Carolinas and the Stanly County Community Foundation. Under Give, Grant, Grow Stanly, FFTC matches – dollar-for-dollar – contributions from current and former board members of SCCF, up to an annual maximum. These contributions, including FFTC's match, are added to the Stanly County Community Foundation's grantmaking funds and awarded to nonprofits in Stanly County. If contributions received exceed the annual maximum, the excess contributions will be added to the principal of the Stanly County Community Foundation's endowed funds.

For more information: https://www.fftc.org/donate/give_grant_grow_stanly

NORTH CAROLINA COMMUNITY FOUNDATION

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for non-profit organizations and institutions throughout the state. Based in Raleigh, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. Nonprofit organizations and local government units, such as public schools, are eligible to apply. The foundation will only give consideration to applicants that serve counties within its affiliate network.

For more information: http://www.nccommunityfoundation.org/grants-scholarships

Z. SMITH REYNOLDS FOUNDATION

This Winston-Salem-based foundation has been assisting environmental projects in North Carolina for many years. Grant recipients include nonprofit organizations, colleges and universities, religious entities, and government agencies that have projects or programs that serve North Carolinians. The Foundation focuses its grant making on five focus areas: Community Economic Development; Environment; Public Education; Social Justice and Equity; and Strengthening Democracy. The "environment" focus area is the most applicable for bicycle and pedestrian projects. This focus area seeks to protect and restore ecosystems in the state's mountains and coastal areas. The Z. Smith Reynolds

Foundation is committed to accommodating the increasing growth demands in the state in environmentally sustainable ways, including through enhanced transportation options. Deadline to apply is typically in August.

For more information: http://www.zsr.org/grants-programs

BANK OF AMERICA CHARITABLE FOUNDATION

The Bank of America Charitable Foundation is one of the largest in the nation. Its grantmaking activities are focused on 3 focus areas: workforce development and education, community development, and basic needs. The area of focus most relevant to increased recreational opportunities and trails is community development, which provides funding for projects that foster green communities and for transit oriented development projects. Only nonprofit organizations are eligible to apply for funding.

For more information: www.bankofamerica.com/foundation

LOCAL TRAIL SPONSORS

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

CORPORATE DONATIONS

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

PRIVATE INDIVIDUAL DONATIONS

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

FUNDRAISING/CAMPAIGN DRIVES

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

VOLUNTEER WORK

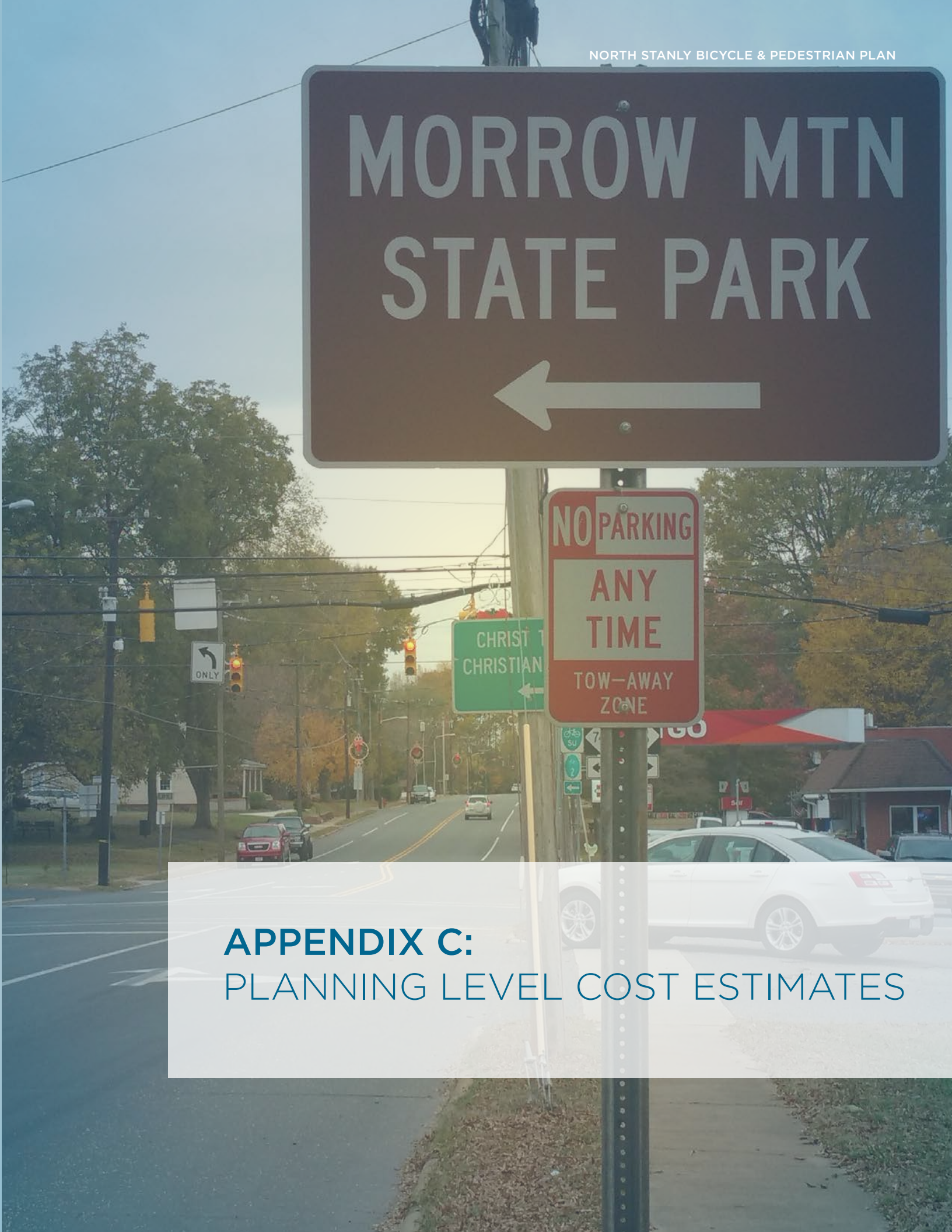
It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

INNOVATIVE FUNDING OPTIONS

Crowdsourcing "is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers."

For some success stories and ideas for innovative fundraising techniques: https://www.americantrails.org/resources/trail-planning

Pfeiffer University campus includes a network of pathways, linking different parts of campus.



APPENDIX C:
PLANNING LEVEL COST ESTIMATES

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PLANNING ESTIMATE

PRIORITY PROJECT #2: FALCON TRAIL - NEW LONDON

LOCATION: **TARHELL CHALLENGE ACADEMY / FUTURE NEW LONDON PARK TO SOUTHERN TERMINUS OF SPRING ST**

DESCRIPTION:
0.2 MILES ASPHALT SHARED USE PATH,
0.9 MILES SHARED LANE MARKINGS.
0.1 MILES SIDEWALK, AND REMOVAL OF RIGHT SLIP LANE FROM US-52 ONTO S. MAIN ST.
REMOVAL OF SLIP LANE AND INSTALLATION OF A RIGHT TURN LANE FROM US-52 ONTO MAIN ST.
EXCLUDES PEDSTRIAN CROSSING OF MAIN ST AT PARK LANE.

TOTAL LENGTH: **1.2 MILES**
EST. PROJECT COST: **$370,000**

COUNTY: STANLY DIVISION: 10

ITEM NO.			ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE. NO.	DESC. NO.	SECT. NO.					
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$10,600.00	$10,600.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$1,900.00	$1,900.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$12,600.00	$12,600.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	1040	CY	$25.00	$26,000.00
0005	0106000000-E	230	BORROW EXCAVATION	320	CY	$15.00	$4,800.00
0006	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	950	SY	$5.00	$4,750.00
0001	0163000000-E	250	REMOVAL OF EXISTING CONCRETE PAVEMENT	170	SY	$15.00	$2,550.00
0007	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	47	LF	$100.00	$4,720.00
			15" RC PIPE CULVERTS, CLASS V	16	LF	$60.00	$960.00
0008	1011000000-N	500	FINE GRADING	1	LS	$11,850.00	$11,850.00
0009	1121000000-E	520	AGGREGATE BASE COURSE	540	TON	$35.00	$18,900.00
0010	1275000000-E	600	PRIME COAT	518	GAL	$5.33	$2,760.94
0001	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	70	TON	$60.00	$4,200.00
0001	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	40	TON	$50.00	$2,000.00
0011	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	170	TON	$62.00	$10,540.00
0012	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	20	TON	$600.00	$12,000.00
0013	2209000000-E	838	ENDWALLS	20	CY	$600.00	$12,000.00
0001	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	2	EA	$2,000.00	$4,000.00
0001	2352000000-N	840	FRAME WITH GRATE, STD 840.****	2	EA	$500.00	$1,000.00
0001	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	190	LF	$30.00	$5,700.00
0014	2591000000-E	848	4" CONCRETE SIDEWALK	340	SY	$50.00	$17,000.00
0001	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	50	SY	$75.00	$3,750.00
0001	2860000000-N	859	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX	2	EA	$3,100.00	$6,200.00
0021	4025000000-E		CONST FURN, ***SIGN (E)	205	SF	$20.00	$4,100.00
0015	4102000000-N	904	SIGN ERECTION, TYPE E	23	EA	$80.00	$1,840.00
0016	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$8,500.00	$8,500.00
0001	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	100	LF	$8.00	$800.00
0017	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	18	EA	$190.00	$3,420.00
0018	4915000000-E	1264	7' U-CHANNEL POSTS	23	EA	$50.00	$1,150.00
0019	6000000000-E	1605	TEMPORARY SILT FENCE	3560	LF	$1.75	$6,230.00
0020	6084000000-E	1660	SEEDING & MULCHING	0.6	ACR	$1,400.00	$840.00
			SIGNAL MODIFICATION WORK	1	LS	$25,000.00	$25,000.00

CONSTRUCTION COST SUBTOTAL	$232,660.94
CONSTRUCTION CONTINGENCY (35%)	$81,431.33
OPINION OF PROBABLE CONSTRUCTION COST	$314,092.27
ENGINEERING DESIGN (15%)	$47,113.84
RIGHT-OF-WAY ACQUISITION (@ $150K PER ACRE)	$5,000.00
OPINION OF TOTAL PROJECT COST	**$366,206.11**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

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DATE 5/21/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #3, OPTION 1: MISENHEIMER/PFEIFFER UNIVERSITY TO RICHFIELD SIDEPATH**

ALONG US-52 FROM PFIEFFER UNIVSERITY SOUTHERN MOST CROSSWALK TO US-52/NC-49 INTERSECTION

DESCRIPTION: 1.2 MILES 10' ASPHALT SIDE-PATH, WITH REMOVAL OF 0.4 MILES OF EXISTING SIDEWALK

TOTAL LENGTH:	**1.2 MILES**
EST. PROJECT COST:	**$950,000**

COUNTY: STANLY DIVISION: 10

ITEM NO. LINE. NO.	ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$22,500.00	$22,500.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$4,500.00	$4,500.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$56,000.00	$56,000.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	4380	CY	$25.00	$109,500.00
0005	1011000000-N	500	FINE GRADING	1	LS	$29,800.00	$29,800.00
0006	1121000000-E	520	AGGREGATE BASE COURSE	2790	TON	$35.00	$97,650.00
0007	1275000000-E	600	PRIME COAT	2505	GAL	$5.33	$13,351.65
0008	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	820	TON	$62.00	$50,840.00
0009	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	50	TON	$450.00	$22,500.00
0010	2605000000-N	848	CONCRETE CURB RAMP	16	EA	$2,000.00	$32,000.00
0011	4025000000-E		CONST FURN,***SIGN (E)	216	SF	$20.00	$4,320.00
0012	4102000000-N	904	SIGN ERECTION, TYPE E	24	EA	$80.00	$1,920.00
0013	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$60,000.00	$60,000.00
0014	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	580	LF	$8.00	$4,640.00
0015	4915000000-E	1264	7' U-CHANNEL POSTS	24	EA	$50.00	$1,200.00
0016	6000000000-E	1605	TEMPORARY SILT FENCE	12880	LF	$1.75	$22,540.00
0017	6084000000-E	1660	SEEDING & MULCHING	1.3	ACR	$1,400.00	$1,820.00
			UTILITY POLE RELOCTION	6	EA	$10,000.00	$60,000.00

CONSTRUCTION COST SUBTOTAL	$595,081.65
CONSTRUCTION CONTINGENCY (35%)	$208,278.58
OPINION OF PROBABLE CONSTRUCTION COST	$803,360.23
ENGINEERING DESIGN (15%)	$120,504.03
RIGHT-OF-WAY ACQUISITION ($15,000 / ACRE)	$22,000.00
OPINION OF TOTAL PROJECT COST	**$945,864.26**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

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DATE 5/21/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #3 OPTION 2: MISENHEIMER/PFEIFFER UNIVERSITY TO RICHFIELD SIDEWALK**

ALONG US-52 FROM PFIEFFER UNIVSERITY SOUTHERN MOST CROSSWALK TO US-52/NC-49 INTERSECTION

DESCRIPTION: 0.8 MILES 5' SIDEWALK

TOTAL LENGTH:	**0.8 MILES**
EST. PROJECT COST:	**$370,000**

COUNTY: STANLY DIVISION: 10

ITEM NO.			ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE. NO.	DESC. NO.	SECT. NO.					
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$10,500.00	$10,500.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$2,100.00	$2,100.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$18,000.00	$18,000.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	560	CY	$25.00	$14,000.00
0005	1011000000-N	500	FINE GRADING	1	LS	$9,600.00	$9,600.00
0006	2591000000-E	848	4" CONCRETE SIDEWALK	2390	SY	$50.00	$119,500.00
0007	2605000000-N	848	CONCRETE CURB RAMP	16	EA	$2,000.00	$32,000.00
0008	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$10,000.00	$10,000.00
0009	6000000000-E	1605	TEMPORARY SILT FENCE	8600	LF	$1.75	$15,050.00

CONSTRUCTION COST SUBTOTAL	$230,750.00
CONSTRUCTION CONTINGENCY (35%)	$80,762.50
OPINION OF PROBABLE CONSTRUCTION COST	$311,512.50
ENGINEERING DESIGN (15%)	$46,726.88
RIGHT-OF-WAY ACQUISITION ($15,000 / ACRE)	$9,000.00
OPINION OF TOTAL PROJECT COST	**$367,239.38**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
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DATE 5/21/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #4: INTERSECTION IMPROVEMENTS - US 52 CROSSING ENHANCEMENTS - US52/NC49**

DESCRIPTION: INSTALLATION OF CONCRETE SPLITTER ISLANDS, BUMPOUT, AND REFUGE MEDIANS, PEDESTRIAN SIGNAL HEADS, CROSSWALKS, AND 1,500 LF OF SIDEWALK CONNECTION TO LOCAL BUSINESSES.

EST. PROJECT COST: **$390,000**

COUNTY: STANLY DIVISION: 10

ITEM NO. LINE. NO.	ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$9,800.00	$9,800.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$1,600.00	$1,600.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$5,600.00	$5,600.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	200	CY	$25.00	$5,000.00
0005	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	410	SY	$4.00	$1,640.00
0006			15" RC PIPE CULVERTS, CLASS V	320	LF	$60.00	$19,200.00
0007	1011000000-N	500	FINE GRADING	1	LS	$3,400.00	$3,400.00
0008	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	0	LF	$25.00	$0.00
0009	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	820	LF	$30.00	$24,600.00
0010	2591000000-E	848	4" CONCRETE SIDEWALK	850	SY	$50.00	$42,500.00
0011	2605000000-N	848	CONCRETE CURB RAMP	6	EA	$2,000.00	$12,000.00
0012	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	410	SY	$75.00	$30,750.00
0013	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$39,100.00	$39,100.00
0014	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	540	LF	$8.00	$4,320.00
0015	7648000000-N	1746	RELOCATE EXISTING SIGN	10	EA	$250.00	$2,500.00
0016			PEDESTRIAN COUNTDOWN SIGNAL (FULL INSTALL WITH NEW POLE, PEDESTAL, FOUNDATION)	6	EA	$6,000.00	$36,000.00
0017			ADJUST SIGNAL TIMING	1	EA	$2,500.00	$2,500.00

CONSTRUCTION COST SUBTOTAL	$245,830.00
CONSTRUCTION CONTINGENCY (35%)	$86,040.50
OPINION OF PROBABLE CONSTRUCTION COST	$331,870.50
ENGINEERING DESIGN (15%)	$49,780.58
RIGHT-OF-WAY ACQUISITION (@ $150K PER ACRE)	-
OPINION OF TOTAL PROJECT COST	**$381,651.08**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

COMPUTED BY CJA
DATE 5/21/2018

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PLANNING ESTIMATE

PRIORITY PROJECT #4: INTERSECTION IMPROVEMENTS - US 52 / MAIN STREET IN RICHFIELD

LOCATION:

DESCRIPTION: INSTALLATION OF (2) PEDESTRIAN REFUGE ISLANDS, CROSSWALKS, UPDATED CURB RAMPS, PEDESTRIAN SIGNALS, AND SHIFTING OF TRAVEL LANE PAVEMENT MARKINGS.

EST. PROJECT COST: **$140,000**

COUNTY: STANLY DIVISION: 10

ITEM NO.			ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE. NO.	DESC. NO.	SECT. NO.					
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$3,900.00	$3,900.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$300.00	$300.00
0005	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	15	SY	$4.00	$60.00
0001	2591000000-E	848	4" CONCRETE SIDEWALK	15	SY	$75.00	$1,125.00
0003	2605000000-N	848	CONCRETE CURB RAMP	8	EA	$2,000.00	$16,000.00
0001	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	20	SY	$125.00	$2,500.00
0004	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$7,800.00	$7,800.00
0001	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	1155	LF	$0.80	$924.00
0005	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	605	LF	$8.00	$4,840.00
0001	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	4	EA	$200.00	$800.00
0001	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	1155	LF	$0.80	$924.00
0006			PEDESTRIAN COUNTDOWN SIGNAL (1-PAIR SIGNAL HEADS - FULL INSTALL WITH NEW SHARED POLE, PEDESTAL, FOUNDATION)	6	EA	$8,000.00	$48,000.00
0007			ADJUST SIGNAL TIMING	1	EA	$2,500.00	$2,500.00

CONSTRUCTION COST SUBTOTAL	$89,673.00
CONSTRUCTION CONTINGENCY (35%)	$31,385.55
OPINION OF PROBABLE CONSTRUCTION COST	$121,058.55
ENGINEERING DESIGN (15%)	$18,158.78
RIGHT-OF-WAY ACQUISITION (@ $150K PER ACRE)	-
OPINION OF TOTAL PROJECT COST	**$139,217.33**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

COMPUTED BY CJA
DATE 9/17/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #4: INTERSECTION IMPROVEMENTS - US 52 AT PFEIFFER UNIVERSITY CAMPUS**

DESCRIPTION: INSTALLATION OF CONCRETE REFUGE ISLANDS AT TWO INTERSECTIONS. RESTRIPING OF CROSSWALKS. UPDATE OF ADA CURB RAMPS.

EST. PROJECT COST: **$22,000**

COUNTY: STANLY DIVISION: 10

ITEM NO.			ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE. NO.	DESC. NO.	SECT. NO.					
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$1,000.00	$1,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$100.00	$100.00
0003	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	40	SY	$4.00	$160.00
0001	2605000000-N	848	CONCRETE CURB RAMP	2	EA	$2,000.00	$4,000.00
0001	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	40	SY	$75.00	$3,000.00
0006	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$2,000.00	$2,000.00
0007	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	120	LF	$8.00	$960.00
			ADJUST SIGNAL TIMING	1	EA	$2,500.00	$2,500.00

CONSTRUCTION COST SUBTOTAL	$13,720.00
CONSTRUCTION CONTINGENCY (35%)	$4,802.00
OPINION OF PROBABLE CONSTRUCTION COST	$18,522.00
ENGINEERING DESIGN (15%)	$2,778.30
RIGHT-OF-WAY ACQUISITION (@ $150K PER ACRE)	-
OPINION OF TOTAL PROJECT COST	**$21,300.30**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

COMPUTED BY CJA
DATE 5/21/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #5: CLEARVIEW APARTMENTS SIDEPATH**
ALONG US-52 FROM CLEARVIEW APARTMENTS BY GLENMORE RD TO PFEIFFER UNIVERSTIY SOUTH MOST CROSSWALK (AT PROJECT #3)

DESCRIPTION: 0.7 MILES 10' ASPHALT SIDE-PATH

TOTAL LENGTH:	**0.7 MILES**
EST. CONTRUCTION COST:	**$370,000**

COUNTY: STANLY DIVISION: 10

ITEM NO.			ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE. NO.	DESC. NO.	SECT. NO.					
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$10,500.00	$10,500.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$2,100.00	$2,100.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$24,000.00	$24,000.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	1850	CY	$25.00	$46,250.00
0005	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	1420	SY	$4.00	$5,680.00
0006			15" RC PIPE CULVERTS, CLASS V	20	LF	$60.00	$1,200.00
0007	1011000000-N	500	FINE GRADING	1	LS	$7,900.00	$7,900.00
0008	1121000000-E	520	AGGREGATE BASE COURSE	1540	TON	$35.00	$53,900.00
0009	1275000000-E	600	PRIME COAT	1381	GAL	$5.33	$7,360.73
0010	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	450	TON	$62.00	$27,900.00
0011	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	30	TON	$450.00	$13,500.00
0011	4025000000-E		CONST FURN,***SIGN (E)	126	SF	$20.00	$2,520.00
0012	4102000000-N	904	SIGN ERECTION, TYPE E	14	EA	$80.00	$1,120.00
0013	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$8,400.00	$8,400.00
0001	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	505	LF	$8.00	$4,040.00
0014	4915000000-E	1264	7' U-CHANNEL POSTS	14	EA	$50.00	$700.00
0015	6000000000-E	1605	TEMPORARY SILT FENCE	7100	LF	$1.75	$12,425.00
0016	6084000000-E	1660	SEEDING & MULCHING	0.4	ACR	$1,400.00	$560.00

CONSTRUCTION COST SUBTOTAL	$230,055.73
CONSTRUCTION CONTINGENCY (35%)	$80,519.51
OPINION OF PROBABLE CONSTRUCTION COST	$310,575.24
ENGINEERING DESIGN (15%)	$46,586.29
RIGHT-OF-WAY ACQUISITION ($15,000 / ACRE)	$12,000.00
OPINION OF TOTAL PROJECT COST	**$369,161.52**

NOTE:
ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
BASED ON 2017/2018 UNIT PRICES, INFLATION NOT INCLUDED.

COMPUTED BY CJA
DATE 5/21/2018

alta ENGINEERING
NC License #P-1301

PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #6: RICHFIELD PARK CONNECTOR**

FROM THE SIDEWALK TERMINUS AT DOLLAR GENERAL TO RICHFIELD PARK

DESCRIPTION: 0.3 MILES 10' ASPHALT SHARED USE PATH

TOTAL LENGTH:	**0.3 MILES**
EST. CONTRUCTION COST:	**$250,000**

COUNTY: STANLY DIVISION: 10

ITEM NO. LINE. NO.	ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$7,100.00	$7,100.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$1,500.00	$1,500.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	1	LS	$20,000.00	$20,000.00
0004	0022000000-E	225	UNCLASSIFIED EXCAVATION	1260	CY	$25.00	$31,500.00
0005	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	40	LF	$45.00	$1,800.00
0006	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	62	LF	$100.00	$6,160.00
0007	1011000000-N	500	FINE GRADING	1	LS	$13,700.00	$13,700.00
0008	1121000000-E	520	AGGREGATE BASE COURSE	700	TON	$35.00	$24,500.00
0009	1275000000-E	600	PRIME COAT	599	GAL	$5.33	$3,192.67
0010	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	200	TON	$62.00	$12,400.00
0011	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	15	TON	$450.00	$6,750.00
0012	2209000000-E	838	ENDWALLS	20	CY	$600.00	$12,000.00
0013	4025000000-E		CONST FURN,***SIGN (E)	54	SF	$20.00	$1,080.00
0014	4102000000-N	904	SIGN ERECTION, TYPE E	6	EA	$80.00	$480.00
0015	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$2,000.00	$2,000.00
0016	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	180	LF	$8.00	$1,440.00
0017	4915000000-E	1264	7' U-CHANNEL POSTS	6	EA	$50.00	$300.00
0018	6000000000-E	1605	TEMPORARY SILT FENCE	3080	LF	$1.75	$5,390.00
0019	6084000000-E	1660	SEEDING & MULCHING	0.5	ACR	$1,400.00	$700.00

CONSTRUCTION COST SUBTOTAL	$151,992.67
CONSTRUCTION CONTINGENCY (35%)	$53,197.43
OPINION OF PROBABLE CONSTRUCTION COST	$205,190.10
ENGINEERING DESIGN (15%)	$30,778.52
RIGHT-OF-WAY ACQUISITION ($15,000 / ACRE)	$11,000.00
OPINION OF TOTAL PROJECT COST	**$246,968.62**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
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COMPUTED BY CJA
DATE 5/21/2018

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PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #7: FALCON TRAIL TO FOOD LION COMMERICAL CENTER SHARED LANES**

CULP RD FROM FALCON TRAIL TO US-52, AND PARKER LN FROM CULP RD TO PROJECT #5 BEHIND THE AUTOZONE

DESCRIPTION: 0.3 MILES SHARED LANE MARKINGS ON CULP RD
0.2 MILES SHARED LANE MARKINGS ON PARKER LN

TOTAL LENGTH:	**0.5 MILES**
EST. CONTRUCTION COST:	**$16,000**

COUNTY: STANLY DIVISION: 10

ITEM NO. LINE. NO.	ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$1,000.00	$1,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$100.00	$100.00
0003	4025000000-E		CONST FURN,***SIGN (E)	54	SF	$20.00	$1,080.00
0004	4102000000-N	904	SIGN ERECTION, TYPE E	6	EA	$80.00	$480.00
0005	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$2,000.00	$2,000.00
0006	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	22	EA	$190.00	$4,180.00
0007	4915000000-E	1264	7' U-CHANNEL POSTS	6	EA	$50.00	$300.00

CONSTRUCTION COST SUBTOTAL	$9,140.00
CONSTRUCTION CONTINGENCY (35%)	$3,199.00
OPINION OF PROBABLE CONSTRUCTION COST	$12,339.00
ENGINEERING DESIGN (25%)	$3,084.75
RIGHT-OF-WAY ACQUISITION ($15,000 / ACRE)	-
OPINION OF TOTAL PROJECT COST	**$15,423.75**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
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COMPUTED BY CJA
DATE 10/26/2018

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NC License #P-1301

PLANNING ESTIMATE

LOCATION: **PRIORITY PROJECT #8: E. GOLD STREET SIDEPATH**

ALONG E. GOLD ST FROM MAIN ST TO HIGHLAND DR

DESCRIPTION: 0.4 MILES SHARED USE SIDE PATH WITH 4' FLEX POST BUFFER WITHIN EX ROAD

TOTAL LENGTH:	**0.4 MILES**
EST. CONTRUCTION COST:	**$110,000**

COUNTY: STANLY DIVISION: 10

ITEM NO. LINE. NO.	ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			ROADWAY ITEMS				
0001	0000100000-N	800	MOBILIZATION	1	LS	$3,100.00	$3,100.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$700.00	$700.00
0011	4025000000-E		CONST FURN,***SIGN (E)	180	SF	$20.00	$3,600.00
0003	4102000000-N	904	SIGN ERECTION, TYPE E	20	EA	$80.00	$1,600.00
0004	4399000000-N	1105	TEMPORARY TRAFFIC CONTROL	1	LS	$6,100.00	$6,100.00
0005	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	6325	LF	$0.65	$4,111.25
0006	4690000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)	4750	LF	$2.40	$11,400.00
0007	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	2375	LF	$2.00	$4,750.00
0001	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	360	LF	$8.00	$2,880.00
0008	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	38	EA	$190.00	$7,220.00
0009	4855000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (6")	4750	LF	$0.80	$3,800.00
0010	4915000000-E	1264	7' U-CHANNEL POSTS	20	EA	$50.00	$1,000.00
0011	4940000000-N	1267	FLEXIBLE DELINEATORS (YELLOW)	198	EA	$100.00	$19,791.67

CONSTRUCTION COST SUBTOTAL	$70,052.92
CONSTRUCTION CONTINGENCY (35%)	$24,518.52
OPINION OF PROBABLE CONSTRUCTION COST	$94,571.44
ENGINEERING DESIGN (15%)	$14,185.72
RIGHT-OF-WAY ACQUISITION (@ $150K PER ACRE)	-
OPINION OF TOTAL PROJECT COST	**$108,757.15**

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
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COMPUTED BY CJA
DATE 5/21/2018

NORTH STANLY
BICYCLE & PEDESTRIAN PLAN

Prepared for the Village of Misenheimer, Town of Richfield, and Town of New London, North Carolina & NCDOT
Prepared by Alta Planning + Design

2018